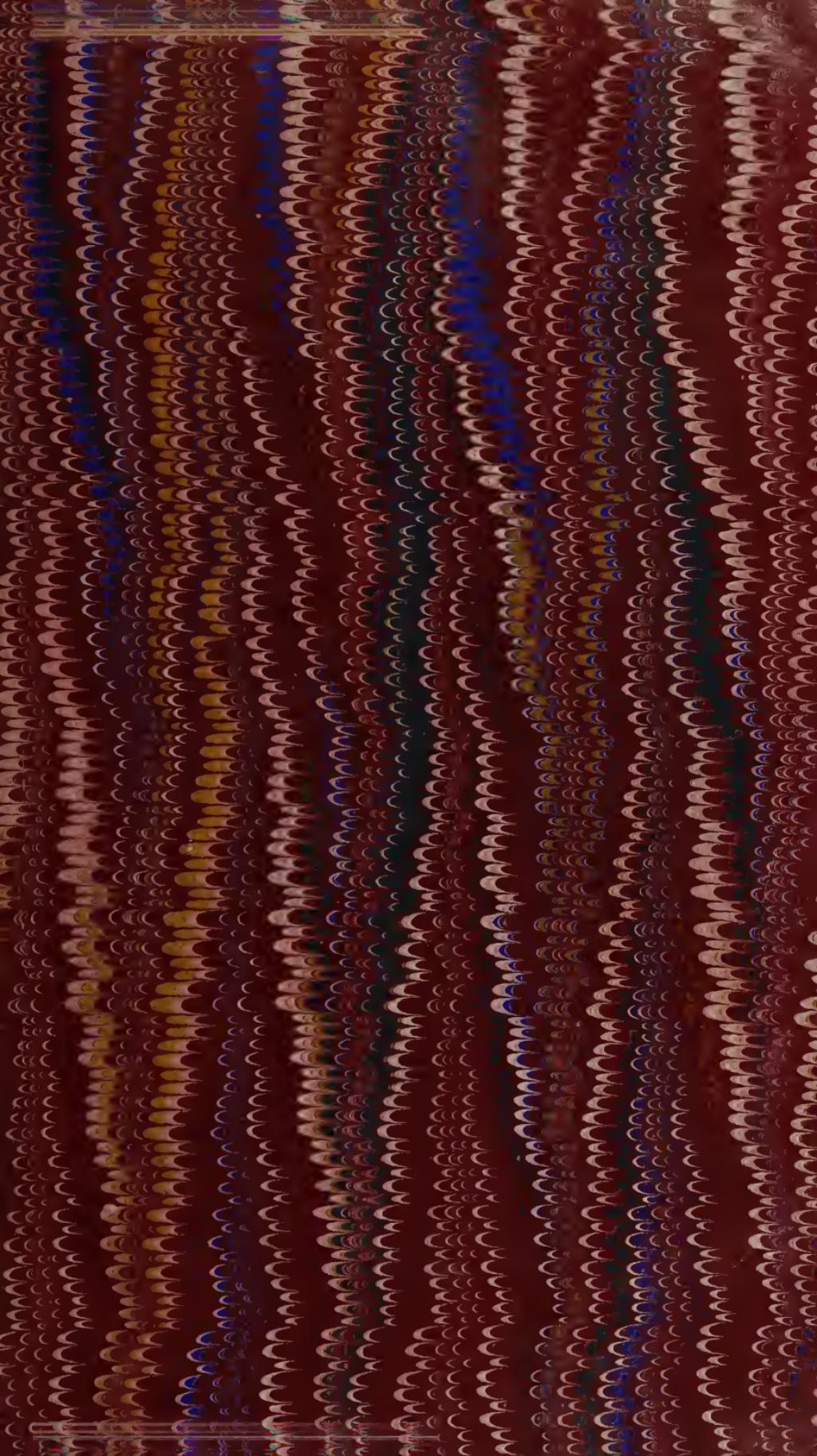


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INTRODUCTION.

THE discussion of science is a common privilege.—When it arrives at truth it will elicit respect.—When it deviates into error it merits exposure. I cannot solicit indulgence, when I refuse submission to restraint. Nor will I attempt to throw around the present essay, the flimsy bulwark of apology or professions. I leave the one and the other to those who are at the same time courtiers for patronage, and cowards to criticism.

Propriety however demands the remark, that the freedom I arrogate, and exercise, should not be construed into unprovoked assault. In daring to assert what I am warranted in believing, I have no where in view a particular object.* I hold up neither this man, or that book.

It might be justly termed presumption to contend for victory, where so many have incurred defeat.—But such is not my object.

* I allude to the introduction.

Thrown by the casualties which direct the individual allotment in human condition, an adventurer upon the theatre of medicine, that prolifick field of good and evil, I resign to others “ample dominion and extended empire,” content with cultivating in a “capricious climate,” the “dubious hope” of the husbandman and labourer. That mania for fame and fortune, which has directed the “deluge of disorder,” upon every newly discovered and unexplored country, has not only blended in confusion in the field of medicine, the poison and the balm which nature had separated, but has engrafted on its soil every outcast weed which the experience of other regions* had proved to be useless or pernicious. Amidst confusion thus intricate, and danger thus multiplied, even the humble occupation of patient labour, and cautious inquiry, may claim a degree of importance. It will help to disentangle the first, and diminish the latter. And may confer benefit though it should not attract applause.

Mankind have at different times amused themselves with the speculative inquiry, how far the medical profession was conducive to general welfare. Whether society had gained or suffered by the unlimited toleration of this description of its members.—The evidence of facts and the inference of reason if

* Sciences

attended to, would in my apprehension have long since rendered this subject too serious to be entertaining. They ought to have aroused society to the conviction that the abuse of that profession, had rendered the fair promises of physical science illusory. That its primary object had been defeated, and the best hope pertaining to the condition of mortality, doomed to disappointment. After a thousand years of bootless expectation, they ought no longer to be amused with written absurdities, and colloquial nonsense.

It would be fortunate for humanity, and creditable to the science, if truth would permit a different testimony. But it will not.

“Naturae
Perturbatur ibi totum sic corpus et omnes
Commutantur Positurae Principiorum.”

Were the faculty to obey its impulse, (like the Roman lawyers who we are told were once seized with the spirit of self-exposure), they must admit the general fact, that were professional incaution to drop for a moment the mask which hides its ignorance from common observance, or the hand of inquiry to lift the drapery of artifice behind which it seeks security, the philosopher would turn with disgust from the barren spectacle, and the philanthropist drop a tear on the exposed condition of mortality.—For it would then be discovered that while social indul-

gence had held the occupation sacred, and restrained curiosity from intruding on its work, in the hope of eventual benefit from its labours, instead of rearing with care and skill, the splendid and solid edifice of real science, its little industry had been worse than uselessly employed in heaping together a formless mass of rubbish. A “rudis indigestaque moles,” without beauty, proportion, or purpose.

Age after age, has generously collected materials for the use of the profession. They offer it their facts and follies. But it appears to have examined, only to confound them. And “could an old physician rise from his grave, and take a view of modern writings and opinions, the venerable ancient” would think even his follies disgraced, by being made to prop more foolish fabricks. Every depository of absurdities has been plundered to procure materials for the composition of systems, whose attempted illustration has exhausted the stock of senseless verbal ambiguities. Like the labours of the multitude on the plain of Shinar, they were begun without order and ended in confusion. And like the issue of those labours, each will one day be regarded as nothing more or better, than “une boutique de verbiage”—a mere word shop.

Modern cultivators of physick outstrip their predecessors in nothing but rashness.

They have advanced boldly, though blindly, into the fruitless desert of conjecture. No license of fancy is left unclaimed, or unexercised. No dream of imagination escapes a record. "A supernatural gloom is thrown around every thing they touch; and amid the artificial darkness and perplexity thus created, the candid inquirer knows not where to bestow his confidence. Their ingenuity acknowledges no bounds of prudence, and encounters no obstacle which it does not overthrow. Facts are alleged, or distorted as best suits the purpose, and laws promulgated for the admiration of man, which nature never made, and cannot obey.—Such is the supineness to investigation, so great the proneness to credulity, that theories and systems, thus founded, and thus supported, maintain a quiet, or but feebly disputed empire, amidst the ruins of observation and common sense."

The science has always been disgraced by whimsical theories. But in an unenlightened age they were not without apology. That it should still be the sport and the victim of "vague and disjointed reveries, when a really philosophical spirit seems to have pervaded every other branch of knowledge," is matter of astonishment. The mathematician can manage successfully his lines and figures; the mechanick his rule; the astronomer his telescope; the navigator his compass. The

natural philosopher walks in familiar converse with the material world; or where he lacks an acquaintance, the noble science of chemistry operating by principles and with results seldom destitute of surety, can secure him an introduction. In short every science save medicine has become rational and respectable, by the exertions of their cultivators. It alone has resisted the diligence of a thousand years. And though it has been wrested “*nutricibus anilibus*,” from the hands of nurses and old women, and its profession become dignified and lucrative, it possesses at this day in the understanding of but few, either a definite idea or established principle. It seems peculiar to physicians to grovel in darkness; “to erect aspiring structures without regarding the insecurity of the foundation. Folly is piled upon folly, till the architect vacillates among the clouds, ready to sink under the first blast that overtakes him.”

The writer is indifferent to the application of his remark on the limitation of professional understanding. He hazards nothing on the score of its intrinsick truth. Except in the hands of a few, the correct principles and ordinary practice of medicine have no natural relation.

Formerly the motion, quantity and properties of fluid, engrossed conjecture and experiment. With the sages of the time, the human body was a congeries of tubes, conduits, and

reservoirs, whose different capacities were calculated with as much accuracy as the gradations of an hygrometer. Heavier heads and hands less dexterous, have since been at work on more solid matter. And for many years it has been discussed with the antiquated solemnity of a trial for necromancy, whether the animal machine, were a clock, a fiddle, a watch spring, or a go-cart. Every known principle of mechanicks, and every fancied property of matter, have been pressed into service, and dragooned into discipline. Distinguished leaders have taken their station at the head of the adverse battalia; and when the commanding generals retire, subalterns, after trimming and currying their hobbies, vault on their backs, and figure on parade.

In the writings of most professors and practitioners, and in the current opinions and common conduct of physicians, the disinterested observer will find the dogmata of medicine and the modes of practice, "inconsistent with one another, with common sense, and with themselves. The different systems and opinions tripping up the heels of each other, and garnished with the semblance of literature; the 'tortuous meanderings of verbal obliquity,' serve little other purpose than to procure for their author or usurper, the vote of fashion; that he alone is qualified to take nature by the hand, and lead her through her distresses. For fashion is as necessary to

the physician, as to the dentist and dancing master."

A profession honourable even in an age without science, for it was then confined to the learning, and engaged the best intellects of the time, has dwindled into a petty craft, shared among adventurers, as different in character as the objects of enterprize are various and multiplied. By those who become book-makers* without a qualification from nature or the schools; by others who are made practitioners of physick after their stupidity had been found proof against the plainest rules of the simplest art. And by a third set (not least in number,) who too profligate to be industrious, have cunning enough to prefer the practice of impostures licensed by custom, to those which involve a legal penalty.

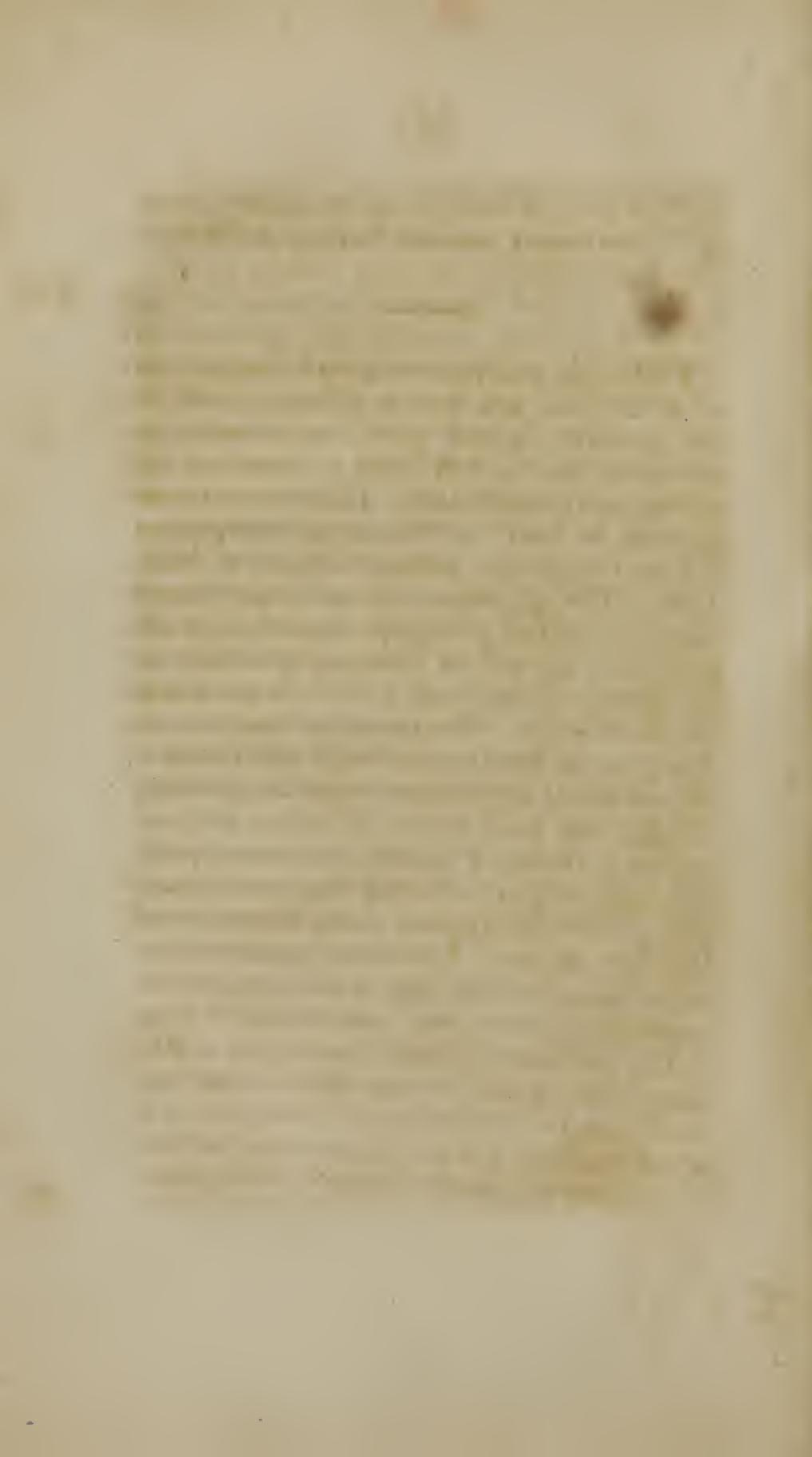
Should it be said that such language is less temperate than the subject or occasion requires, there can be but one answer. I would not hold a straw against the Indian tomahawk, nor hope to dam with sugar the mountain torrent. The profession has many ingenuous cultivators and upright members. But their very attachment to that profession has shut out most of those from a participation of its advantages. When casual circumstances do not contribute to their success, they are

* If it can afford any gratification, I will readily consent to be associated with this fraternity.

thrown into obscurity with breadless and ragged families, by cunning intrigue and brazen faced pretension.

A celebrated historian has remarked that while in Europe, superstition was the hand maid of religion, the savages of America had associated magick and medicine. Could he write again the history of that continent, he might leave on record as a comment on that remark, that where the original race could not now be found, this memorial of its former existence, might, still be met with. That the Indian in falling under the sword of his more civilized conquerour, had bequeathed him his credulity. For only Indian credulity could attribute medical knowledge to minds destitute of all other science; or create chapmen for papers and boxes declared to contain articles possessing mysterious qualities and magical powers.

While society continues, disposed to commit a “Felo de se” by offering premiums for folly in lieu of science or sense, human life will be a fair subject of awkward experiment.



“Cohors nova incubuit Febrium terris.”

FOR eight years past a disease has prevailed at irregular intervals in different parts of our country, whose novel and destructive character has excited much professional attention and general alarm. The first authentic account we have of this mischievous visitant is from the Boston medical register of May, 1806. The physicians of that state though silent as to the particular period of its appearance, accord in referring generally to the spring of that year (1806) as the era of its introduction. It appears to have been at that time confined to particular, and (so far as we can learn) very limited districts, generally villages and small towns. We have not been informed whether its agency was subsequently more diffused; nor whether it prevailed generally, or but at intervals since, or has been altogether absent. I believe however (from oral communication) that it has occurred occasionally in every year since its introduction.

The statements which give us the first notice of this disease, do not offer us any topographical or circumstantial intelligence, on which we might rest conjecture as to the cause of its generally local existence. It appears

to have selected villages and towns as the chief theatres of operation. But we are not informed whether those towns occupied an elevated or level site; whether near to, or remote from, mountains, rivers, creeks, swamps, &c. We are left in equal ignorance as to the temperature, dryness, or humidity *of the air during the periods* of its prevalence.

In 1807 (the spring I believe, but we are not distinctly informed) the physicians of Connecticut, were called upon to resist this formidable assailant. Its inroad upon that state appears to have been at many and distant points, about the same period. Here too the towns and villages, were the principal sufferers. The noxious agent seems to have directed its force where its victims could be most readily multiplied.*

We should infer from the alarm communicated to the Connecticut physicians by the symptoms and consequences of the disease, and the incertitude they avowed as to the proper weapons to be wielded against the invader, that they had acquired but partial information of its previous existence in Massachusetts, of its character, or correct treatment. Its diffusion appears to have been more considerable in Connecticut, than it had been in Massachusetts. The medical histo-

* This does not appear to have been the fact in relation to cities, or the most populous towns.

ries of the disease, published in the former state were more numerous and explicit, than those of the latter. They exhibit an account of its symptoms, the modes of treatment dictated by analogical reasoning, or adopted on the evidences of experience: with the comparative success of the different plans pursued. Those accounts appear entitled to respect; for they indicate in the general result, or after sufficient time had been afforded to correct early misapprehension, great uniformity of sentiment as to the intrinsick character, and proper treatment of the disease. But we are compelled to award the medical gentlemen of this state, a participation of the censure, in which we have ventured to implicate their brethren of Massachusetts. They have omitted all circumstantial detail, and leave us in darkness as to locality, weather, &c.

Vermont, New Hampshire, Rhode Island, and New York, have each been visited by the disease we are describing. But from the partial traces of its existence, in those states, to be met with on record, we should presume that it was not generally prevalent; nor productive when it existed, of consequences equally mischievous and alarming, as in Connecticut and Massachusetts, particularly the former. To this conclusion New York perhaps, should be proposed as an objection. The disease appeared as early in some parts of that state, as in any of the more eastern

ones: and though confined in extent, was severe in degree.

We find very little said of this disease by the physicians of New England, or New York, from 1808 until the latter part of 1811, and spring of 1812. At this period it revived with augmented force in the north eastern section of New York. The United States' troops who were this year detached to occupy stations on the New York northern frontier, suffered severely from its ravages. If the informal accounts of its destructive influence on those troops, can be relied as general evidence, the remote cause of this disease, must have spread itself over an extensive range of country, and have possessed properties in a high degree active and forcible. It had travelled in the autumn of this year (1812) as far south and west as Albany; and in all the route from that place to the lakes, in a direction north and north-west, its aspect became more distinct and sensible as the lakes were approached. The inhabitants of the level grounds on the North river, above Albany, and of the villages stretching north up this river, called the Mohawk above Troy, felt its force in a very great degree. Some of those villages we are told, were depopulated, by the disease, and the desertion occasioned by the terror it inspired. In 1813 it prevailed so generally in and near Albany as to excite serious deliberation about

the propriety of a temporary removal of the seat of government.

There are no written accounts (which have fallen under my notice) of the existence of this disease in Pennsylvania. It is ascertained however upon satisfactory traditional evidence to have prevailed in the western section of that state in 1810, 11, 13, and 14. It exhibited there (from reports) its common character.

I have heard no assertion of the existence of the disease in Delaware. That it has prevailed there is very probable.

The state of Maryland felt its pernicious presence, for the first time I believe, in the fall of 1812. It commenced its work of desolation, on the eastern shore of the state, (east of the Chesapeake) and was marked there by consequences the remembrance of which, ages will not efface. Those who witnessed, will often talk of them, and traditional testimony will present them to posterity. We should borrow but little of figure, in saying of the passage of the disease through that country, horrour stalked before it, while death and lamentation testified its presence and proclaimed its progress. This minister of destruction began to execute its merciless commission, on the western shore of the state, in the winter of 1813. In many parts of this country it has exacted and continues to exact, an ample tribute. In some districts it has wielded

an indiscriminating and almost exterminating sword.

This historick sketch has been premised to facilitate a more connected estimate of the disease in separate situations, and at different periods. It will be satisfactory, if not useful, to arrive at all possible certainty, in regard to the identity of a disease whose novelty of character, and unparalleled controul over health and life, has been almost equally sensible, wherever it appeared, yet whose real nature, and proper treatment, has been and still is, a subject of opposite and irreconcilable sentiment among those who hold officially, a claim to its investigation and conduct.

This disease (its cause properly) has been thought irregularly migratory; penetrating slowly into different districts, and pursuing no determinate direction. An eccentric vagrant, rather than a systematick traveller. Its general tendency however has been from north north-west, to south south-east.* Perhaps in-

*If the southern and northern disease be generically the same, it is of no importance whether the cause of the first, be identically the *same* with that of the latter, or only a *similar* one. A cause transferred, or a cause locally created.

stead of calling this a migratory disease, we should express a sentiment more correct, because more consonant with our general knowledge of epidemicks, in supposing the cause of its existence, in plain terms, its generation, strictly local. That it was the result of an unsearchable contingent condition, of those places or sections of country where it prevailed. It is not necessary to suppose the causes of this local condition absolutely confined to particular spots or districts. The circumstances (of season perhaps,) which produce it, may exist generally, but in the degree necessary to this particular consequence, only in situations most favourable to their operation.

Such an opinion would at least liberate us from the vague idea, that a cause of disease elaborated at any given point or place, should be held in suspension (we must reject any possible *combination*,) in the air, to be carried into different and remote districts, in obedience to the atmospherick currents. This disease appeared first in a north and north-east direction. It appeared in places *distant from each other*, at or about *the same time*. What condition of climate or country is there in New England, New York, and Pennsylvania, which we cannot have at the same season, in the same, or subsequent years, in Delaware, Maryland, and Virginia? That it was not the result of any strictly topographical peculiarity

in the places where it first appeared, we must infer from the fact, that it was unknown in those places until eight years since.

Another consideration opposed to the presumption of its incursion from abroad, is, that the winds, the supposed vehicle of its transportation, observe considerable uniformity of current in the respective divisions of the year. We ought then to have the disease accompanying their general course, not diverging as we find it, in every direction. Besides, the fall, winter, and spring, winds,* of this continent, blow in the general from the south-west; in direct opposition to the course, the disease must travel to reach us, by an atmospherick current, from the north-east. Should it be supposed, in order to account for its appearance in opposite directions, that an occasional variation of the tide of air, may transport the cause of disease out of its more general course, then we should expect to have its operation in those places, *but for a short time*, that the noxious agent would soon be dissipated, and the district relieved from its pressure. But such is not the fact. When its operation begins to subdue health in any district, months elapse before it ceases to be felt.

* Especially the first and last.... *Reichel and Hecke-welders Tables.*

It has been a common prejudice in Maryland and possibly elsewhere; that this disease was generated in the camps and military posts on our frontier. That the chain of communication established with those posts from the interior, and the return of the sick and wounded, &c. was the medium of its introduction, into separate and distant places. This error could have been avoided, had it been known that the disease existed to the east and northward, three or four years antecedent to the arrival there of the troops. Independent of this fact, observation should have early corrected the delusion of fancy. Every practitioner and indeed every individual who has seen the disease, must have observed its occurrence in persons previously excluded from all intercourse with troops, and in some who for a long time antecedently had seen no person under the influence of that, or any other disease

THIS disease has been designated in different places, by various appellations.* A discordance as to name, is of little conse-

* The remarks on this part of the subject, rest on the presumption that the diseases thus classed, are specifically the same, subject to such modifications as may constitute a variety.

quence. The disease, though perhaps strictly of the epidemick character, has been somewhat modified in its expressions by circumstances of place and season. Though the name is unimportant, the degree and kind of modification is of more consequence. If experience did not inculcate this truth, policy would point out to the faculty its adoption as a covert from disgrace. For in no other way can we escape the imputation of grovelling blindness, when society challenges us to harmonize rationally, our contradictory and quarrelling opinions.

The common appellation of this class of diseases in the New England states, was Spotted fever, (febris maculatus.) On the frontier generally it was called indifferently Spotted or lake fever. In New York, at some distance from the borders, it was known by the New England term, Spotted fever. Maryland and Virginia have rejected those names, and instead of one term, we have three or four, applied as they seem to be indicated by the prominent features of each case. With us the term Typhus serves as a generick head to all the rest. The specifick distinctions, (altogether capricious and whimsical,) are typhus pneumonia, bilious pleurisy, typhus or malignant sore throat, and (among the vulgar) head complaint. Although the particular disease derives its name from some circumstance which more especially invites at-

tention, as the disordered condition, or suffering state of a part or organ; the cases thus varied are all referred to a similar efficient cause. The ultimate effect under all the forms of disease, where the degree or sum of disorder, and original physical capacity are about equal, is so strictly analogous in its circumstances, as to leave no ground of dubitation with respect to the general law of agency. The active principle is one; contingent circumstances, the predisposition of the body, part, or organ, modifies its operation.

Various attempts have been made to give this disease an appropriate rank in nosological arrangement. For this purpose all the diseases have been reviewed with which it held a real or supposed analogy. *Cynanche maligna*, *scarlatina auginosa*; every form of *typhus*, every jail, hospital, putrid, malignant, and petechical fever of our own country or of Europe, have been summoned to a tribunal, where the degrees of kindred and family likeness, were to be canvassed and determined. All this, I humbly think, a very useless parade. The *thing* has some relation to them all; but it would puzzle a board of Chinese physicians, who are conjurors as well as doctors, to say from whose loins it sprung; who were uncles, brothers, cousins, &c. The very difficulty of giving it a distinctive character, one peculiarly its own, should have discountenanced the attempt. For if it be so

much blended in its signs with the common traits of other diseases, as to offer no sure test by which it can be known, no infallible evidence of strictly peculiar character, it cannot justly claim an independent nosological station. Nosology is properly the doctrine of symptoms, not of names; or of names only so far as they are made to represent certain definite and uniform signs, indicative of a determinate disease, or form of disease. Experience only, can enable us to establish correctly the attributes of disease, and in the instance before us, we are without such a guide, for our experience is contradictory, and leads to confusion; there is no fixed point of character on which we can rest. The disease in question, is at most but a compound variety of a species;* and to give it such an arrangement in nosology, would not secure the dignity claimed for it.

GENERAL CHARACTER.

THE medical gentlemen of New England and New York, accord entirely in their ac-

* I allude only to the absence of specifick analogies which could indicate a proper classification with any of the diseases enumerated.

count of the symptoms of the disease, described by them under the term Spotted fever. We have, I believe, no history of the disease from the former, later than 1809-10. We can trace it in New York in 1811-12-13. All the late accounts give us, without material variation, its original character. In proceeding to exhibit the signs of the disease, it will be unnecessary to encumber the arrangement by a minute detail. The general admonitory symptoms, those which mark the attack of disease, and indicate its character, together with those attendant on its progress, will be sufficient for our purpose. It would lead us too far to hunt up all its occasional expressions. Such of them however, as are worthy of notice, will be attended to.

The first stage of this disease, as of other pyrexiae, was indicated by languor and chilliness. As the sense of coldness increased, the defect of strength became more sensible, and generally the animal powers fell very low. This extreme prostration of strength, was a constant and prominent characteristick. The extremities at this time were very cold, and had assumed a livid complexion; the face was dark coloured, the eyes red and humid, the head for the most part disordered and painful, the throat generally sore, but not very painful; spasm of the muscles, fixed pain and numbness of the limbs, were common and early symptoms; the respiration was anxious

and imperfect, somewhat hurried and very distressful; accompanied with what is termed sighing, or frequent irregular exertion of the forces of respiration.

To those symptoms succeeded nausea, vomiting, and proclivity to syncope, with irregular flushes of heat, alternating with rigour or chilliness. The tongue was in nearly all the states of this disease, moist, sometimes slightly brown, or having what is called the bilious coat; occasionally it was pale, and apparently bloodless, rarely dark or dry. The pulse, as usual in defective temperature, was small and weak, not so frequent generally as in the forming stage of common fever; in severe cases it was remarkably slow and intermittent.

In the more advanced stage, or that consequential to the above train of symptoms, the pain of the head became extreme, delirium supervened, sometimes mild, occasionally maniacal and clamatory. In many cases coma occurred either aborigine, or consequent to vigilant delirium of short duration. In this stage of the disease, the particular feature whence it derived its name, the maculae or spots, were generally present. Sometimes these were distinguished as soon as the patient began to complain of indisposition. More commonly they appeared with the flushing, or irregular sensation of heat above noticed; occasionally (though rarely,) they were altogether absent in every stage of the disease.

The spots began on the face, neck, and extremities. They were irregular and had no determinate seat, or uniform character. They were various in figure, extent, and colour. Sometimes a bright red efflorescence, or distinct points of a darker shade; sometimes again, brown or purple blotches, or vibices. None but the last (the vibices,) were elevated above the surface, nor did they change colour or recede on pressure.

The form and colour of the spots were in part an index to the degree of danger. Where they were dark and diffused, having the true petechial character, the disease was formidable, and the event often unhappy. Where patients recovered from the low state of which this form of eruption (or more properly extravasation,) was expressive, sloughing of the skin where the spots were most dark, and consequent ulceration of the part, were common.

The above train of symptoms were generally present for the first four or five hours. If all attempts at relief were unfortunate, they advanced without sensible change except in degree. The loss of temperature then became more sensible to the attendants. The pain of the head, or delirium, increased. If the latter was present, the patient was disposed to frequent and vehement exclamation. The restlessness, or mobility became great,

with attempts to disencumber the body of all covering, or to rise from bed.

In this state the respiration was anxious, but not always hurried. The face became darker, the lips blackish and cracked, the articulation indistinct, voice harsh and rough. The parts about the eye exhibited a brown or brownish red areola, the eye itself was inexpressive; indicating insensibility to objects, rather than the observant phrenetick vivacity. The coldness of the surface remarkable in all the stages of the disease, kept pace in its increase, with the progression of the other symptoms. Additional covering imposed on the body, or the application of elementary heat, effected little or no change in this particular. The surface appeared equally indisposed to the reception of calorick from the internal parts of the body, or from foreign sources. It fell off regularly though slowly in temperature, and the defect became so great as to give the body the cadaverous feel, some time before the signs of life were extinct. The pulse corresponded with the decline of the other faculties. Feeble and irregular, from the first, it became gradually more weak and intermittent. The concluding scene was marked by slow, sighing respiration. It was commonly short.

Such is the history of the severe and fatal cases of the spotted fever of New England and New York, as offered us by the record

evidence of the time and places, when, and where it occurred. Its duration when the termination was fatal, was from twenty four to forty eight hours. Sometimes the body was subdued more gradually, and the disease protracted to one, two, or three weeks. But in those cases the symptoms though similar, were not all present at the same time, and the disease had assumed an irregularly remittent character.

When nature or art opposed to the assault of this terrible adversary, a successful resistance, the first indication of improved condition, was a substitution of general warmth to the previous coldness of the surface, the eruption (if it existed,) became of a brighter colour; the respiration though still anxious, was improved; the countenance was more natural; the eyes livelier, yet still red; the head continued painful, but the understanding was correct. The pains of the limbs, and muscular spasms ceased; the numbness and general rigidity were removed, and the body became quiet and easy in its sensations.

But the recovery was not always immediate, or complete. The consequences of the impressing force, were still evident in the extreme languor and feebleness. A mild fever of the ordinary typhus character, frequently required attention for a few days, sometimes for weeks.

The occasional symptoms, or more properly the occasional consequences, of the different states of the disease, were syncope, temporary blindness, partial tetanus, paralysis of the limbs, strangury, colick, cholera, and hemorrhages.

The pathognomonic symptoms were supposed to be severe head ache, coma, or delirium, sore throat, weak irregular pulse, and sudden and great prostration of strength.

TREATMENT.

AFTER experiment had evinced the errors of unpractised pathology, the treatment of this disease was every where reduced to nearly a common standard. The presumptive evidences of inflammatory character, indicated at first view a necessity for the enforcement of the evacuant plan. It was generally adopted and almost uniformly unfortunate. The body fell into remediless ruin under every mode of free depletion. Individual experience, and the interchange of sentiment, very early conducted the medical gentlemen engaged in its treatment, to the opposite extreme. All evacuants were laid aside, and the very first "demonstrations" of

the disease were met with cordials and stimulants graduated in quantity and force, to the existing or menaced emergency. It was soon discovered that those were the proper instruments of defence, and they were subsequently used with a freedom and boldness scarcely paralleled in the history of medical management.

The primary objects kept in view in what was thought the correct treatment of the spotted fever, were to restore the natural warmth, and excite perspiration. In consulting these intentions, a multiplicity of articles and applications were brought into service; those were such as prejudice or fancy directed. Time reduced the number of each, and eventually confidence rested entirely upon elementary heat variously applied, and the most powerful diffusible stimuli.

The first medicine exhibited was generally laudanum, twenty five or forty drops in wine or toddy, and repeated when thought necessary; heated bricks were then applied to various parts of the body, and frequently changed. The wine or toddy were repeated every half hour; and with either or both were combined, camphor, opium, æther and undiluted brandy; blisters were applied on or near the pained parts, and every possible effort made to provoke sweat, by thick covering and the application of elementary heat.

We are told that in some cases, in addition to the application of various articles charged with foreign heat, two or three hundred drops of laudanum, two or three quarts of brandy, and one or two quarts of wine, were administered to the same patient in twenty four hours. Those of course, must have been cases of extreme torpor and debility.

Many kinds of hot vegetable drinks were used to accelerate the sweating state. Among others the snake-root-tea, held much reputation. Another favorite tea was made by boiling twigs of the hemlock tree. Blocks of this wood, boiled and wrapped with cloths, were thought a convenient and useful vehicle of elementary heat. They were laid on each side, and at the extremities of the patients. Those blocks became celebrated among the vulgar for specifick virtues, and in a little time supplanted every other heat-conveying apparatus.

The articles supposed to be more especially appropriate to particular symptoms, were as follows:

For the head ache, coma, and delirium, blisters on the head and neck; internally, opium, æther and brandy, and heated substances to the feet and legs. For the vomiting (a frequent and distressing symptom,) opium and camphor in the solid form, and hot applications to the gastrick region. For pain in

the intestines, or colick, blisters on the abdomen, fomentation of the same, with injections of yeast and brandy. For the strangury, the warm bath. In paralysis, local stimulants and irritants.

The unmixed stimulant plan was however not always pursued. Some of the medical gentlemen say they met with cases in which a considerable modification of the common practice was necessary. The disease came on in those cases with distinct chill, quickly succeeded by pain in the head and limbs, quick, full pulse, heat, thirst, heavy eyes, foul tongue nausea, and bilious vomiting. A dark red efflorescence appeared with the fever, or more commonly petechiae and vibices.

In such cases, the first medicine given (after the chilliness had abated) was a cathartick, generally calomel and jalap, in sufficient quantity to act freely. At the same time, the feet were immersed in warm water; blisters applied to the extremities and diluent, or (as they are called,) sudorifick drinks, given freely. This treatment is said to have been successful where the above symptoms were present:

Remarks on the preceding notice.

Both justice and decorum must confine the commentator within narrow limits, who hazards an opinion on the proper conduct of a

disease with which he is acquainted by report only. However fairly its general features may be laid before him, he must rest his judgment upon facts supposed, rather than known, upon a thing imagined rather than perceived. The subject before us implicates in a peculiar manner, difficulties of this nature. Leaving the general facts as stated, in undisputed possession of their ground, the question lies between the relative capacity of the body, and force of foreign impression. Each must vary in different cases; and we can neither feel the pulse, nor ask a question. For those reasons, and to avoid repetition of argument, I would prefer embracing the inquiry under the general head of remarks contemplated in another place, on a similar treatment of a disease which is (I believe,) intrinsically the same and with whose particular character I am better acquainted. I wish then to embrace this disease however, with all the limitation which the variety of form, indicated by their comparative history, will warrant.

Before closing this history of the spotted fever, it will be proper to notice, that from its frequent occurrence, novel character, and alarming consequences, an idea was at first entertained that it was diffusible by contagion. The testimony however, of all the medical gentlemen who became familiar with the disease is opposed to this opinion, and

experience appears to have dissipated very soon, the error of general apprehension. There exist as far as I can discover no reasons for the presumption that it was under any circumstances communicable by contagion. It was often of solitary origin, and the habits of intercourse, do not appear to have facilitated its propagation.

The Typhus Fever of Maryland.

WHETHER the various forms of disease which practitioners of medicine in this state have comprehended nominally under the above general term, derive their existence from the same cause, as the one we have noticed in the preceding pages, cannot be determined positively. If it were admitted that the cause (whatever it may be,) were the same, equal difficulty would be interposed in deciding what modification its operation would undergo, from the state of weather in the two or three intermediate years, and from possible variety of climate. I am myself of opinion that a disease similar in kind, to that alluded to, but varied somewhat in its circumstances, has been of common occurrence in many parts of this state for the last

three years. But as the efficient cause of either is altogether problematical, the only ground of sentiment is the relation of facts. And in forming an estimate by their evidence, each man's, personal observation, will be his rule of judgment. A decision would certainly involve no important practical consequence, without it could lead us to the nature of the cause, and point out the proper remedy. We can make no discovery which will disclose the former, and the latter cannot be invariable in any disease of general character.

The name maculated or spotted fever seems to have been applied to a class of disease, having this common but not invariable distinctive feature. It was more significant than any other which could have been adopted. For, though there were some cases without the spotted trait, there were other evidences of analogy sufficient to establish the similarity of essential character, and a large majority of cases were thus marked. We cannot plead equal consistency in the application of the term typhus fever. In common use it is vague and arbitrary; and means in the general, a disease (without fixed character,) attended with symptoms of unusual weakness, or without the presence of inflammatory condition. I shall confine it chiefly to that form of disease, better known in many parts of Maryland, by the term "prevailing epidemick," by medical gentlemen frequently

called "typhus pneumony," and commonly by the vulgar, "biliary pleurisy."

The spotted fever of the eastern and northern states, differed from our epidemick: first—In the common existence of macula and petechial discolorations; particularly, in the time of their appearance. I have seen or heard of those spots in but few cases of disease here, and in those they were late in appearing; generally in the ultimate stages of life. I presume that in the former disease (spotted fever,) they indicate rather the violence, than any peculiar nature of the malady.

In the frequency of "sore throat." This was called a discriminative feature of the northern epidemick. We meet with it occasionally, but it is not common. (In some districts of Virginia, where a disease having all the other features of our epidemick prevails, this evil is complained of in almost every case.)

In the frequency of coma, as also delirium and mania. I have seen no case of complete coma. Head ache and error of intellect are common in our epidemick, entire delirium less so, and the maniacal state infrequent. In extreme defect of general temperature, and duration of that defect. We have chill in the forming state of disease, with cold extremities rather than extreme loss of general temperature; and the patient ceases to complain of coldness (or the sensation of coldness,) one or two hours after the attack of disease. In the

redness and humidity of the eye. I have seen both occasionally, but generally the eye is not sensibly altered from the natural state. In paralysis and muscular rigidity. We often meet with spasms, and disordered sensations referred to the limbs; rarely with paralysis, or great inaptitude to flexion and extension of the limbs. (I have seen two cases of partial paralysis.) In the tetanick state: it has not occurred (I believe,) in this state. In the general smallness, and debility of pulse. We find it in our epidemick generally frequent, and (after the chill,) often full.

There are many occasional symptoms which the spotted and (with us,) typhus fever hold in common, viz: great anxiety of respiration, defect of animal energy, strangury, (or rather dysury,) vomiting, hemorrhage, &c.

Our epidemick on the other hand exhibits characters, or marks of disease, which were altogether absent in the northern or spotted fever. I have seen no mention made in any history of that fever, of a strictly pulmonick affection. The anxiety of respiration was universal, but there was in no case an evidence of organick injury of the lungs. The accounts are totally silent in regard to *pain*, of the thoracick viscera, cough, and expectoration. In the typhus pneumony of this country, pain of the side, and breast, increased expectoration of mucus, and cough, are rarely absent. Those symptoms are so uniform (varying in

degree,) as to have given the designation here used. The pain though generally moderate, is sometimes inexpressibly acute; and in those cases we have very soon organick lesion, marked by ichorous or bloody expectoration. A bright red flush of one or both cheeks, similar to the hectick of terminating phthisis, is also common in our epidemick. A more full account of the disease will be found in the history to which we proceed.

Typhus Pneumony.

The first occurrence of this disease in Maryland (as before observed,) was on the eastern shore of the state in the fall of 1812. It passed in that and the subsequent year, through great part of that country; in the spring of 1813, it appeared in the upper part of the western shore of the state. In the winter of 1813-14, it was very general on this shore, having appeared in many places south and west. At this time Virginia as well as Maryland became the theatre of its operations. Both are still the devoted dwelling-place of this fell destroyer.

WE are instructed by general report, and recently, in a more authentick and ample

manner, by publick communication from a gentleman,* officially an observer of the disease, that the symptoms of the epidemick, or typhus pneumony, (so called,) as it appeared on the eastern shore of Maryland, were frequently intimately allied in their obvious circumstances, to those of ordinary pneumonia or pleurisy. The disease came on with chill, irregular in its duration in different cases, followed as usual by increased heat, and more or less fever. The head was pained, generally more so than in common pulmonary disease, the face flushed, with pain of the breast or side upon inspiration, sometimes moderate, occasionally severe, with a sense of fullness, or stricture in the chest, some cough, and disordered or anxious respiration. The pulse was commonly rather full, not frequent, or tense.

A more close examination of its symptoms (induced by its frequent oceurrence and great fatality,) led, we are told, to the opinion, that there was something essentially different in the real nature of this disease, from ordinary pleurisy or pneumony. The head was found more painful and the flushing of the cheek much greater, than in common pulmonary inflammation. The extreme anxiety and disorder of respiration was remarkable,

*An essay on the epidemick of Talbot and Queen Ann counties in 1813-14.

more especialy as the pain of the side or breast was frequently too inconsiderable to explain that effect. There was little or not much cough, sometimes none. The loss of animal heat was preternaturally great. The surface generally was lower in temperature than is usual in fever with thoracick inflammation. The extremities particularly, continued to be very cold to the touch, after the patient had ceased to express any sensation of cold. Great internal heat too was complained of, while the extremities and surface, especially the former, were very much below the common standard of fever. The pulse likewise, was less frequent and feverous than is usual in pulmonary or pleuritick disease; sometimes it was preternaturally slow, it was rarely, or never tense, occasionally it was weak and intermit- tent even in the early period of disease and while the face was very red, and the breathing apparently that of a person under great excitement.

The gentleman refered to, informs us that those circumstances gave occasion with him after mature consideration, to an abandonment of the evacuant plan. He had enforced it at first, but soon found it not only inefficient for relief, but positively hurtful and pernicious. Reflection he says upon the symptoms and probable nature of the disease, which he now believed to be altogether novel, conducted him to conclusions as to its cause,

which, while they threw down all the reasoning bottomed on former experience in diseases apparently similar, revolutionized entirely the indications and modes of cure, in the one before him. The cause about which he says he "had made up his mind," was fitted in his opinion to throw the body into disease from loss of temperature, in consequence of a defect of a certain principle in the air, on whose presence in due quantity, animal heat depends. The defect of the vital or calorifick principle in the air, was occasioned by a "something" extricated, or ejected from below, by earthquakes. The efficient cause of disease, was the deprivation of the principle on whose existence the generation of animal heat depended. The defect of that heat was the disease itself.

On this idea of defective temperature, is suspended the whole theory and treatment of this formidable epidemick. All the indications of cure hold this one point in regard. They all contemplate a restoration of lost corporeal heat. Bleeding, vomiting, and purging, however guarded and moderate were not only abandoned, but are proscribed, as preposterous and pernicious, in any and every stage and state of the disease. Whether there was torpor or fever, strength or weakness; whether there was much or little heat, thirst and pain; a small and slow pulse, or a quick and full one, but one indication, appears to

have existed, but one mode of treatment to have been proper. The supposed loss of vital heat must be restored, and all previously acquired knowledge must be given up, all inductive reasoning, all analogical inference must be abandoned, or rendered subservient to that purpose. The physician's senses must be locked up; the patients sensations, and the evidence of presumed facts, discredited. Heat only, appears to have been wanted, and that must be supplied at all hazards, or an "*effusion of serum under the schneiderian membrane*"* would take place, and the patient infallibly perish.

The next and only remaining object of importance, we are told, in the same work, was to bring on a "warm breathing sweat." For the first and latter purpose, the remedies we are directed to use, are laudanum freely, thick covering in bed, hot bricks to the extremities, and when pain was complained of, hot teas of every kind, snake root infusion, strong drinks, as spirits, brandy, &c. frequently repeated, *et multas esusmodi res generis alias.*

* The *schneiderian membrane* lines the nasal canal, or cavities of the nose. But has never been found (or any so named,) in any other part of the body.

THE preceding history of the epidemick on the eastern shore of Maryland, corresponds generally, I think, with the more common character of the same or a similar disease on the western shore. I say generally, for (judging from personal experience,) such are the symptoms of the disease in a majority of cases in this country. We have modifications and varieties (as no doubt is the fact there,) of the disease, some of which I propose noticing before concluding this essay, when I shall offer opinions on the general treatment of the disease, adopted rather from close attention to its character in a moderate number of cases, than from very extensive practice; and proposed as *opinions*, not proclaimed as *laws*. In this place I shall attend to the asserted causes of the disease, and the propriety of the treatment urged upon us, as exhibited in the antecedent narrative. I include generally, as mentioned in another place, the history and treatment of the spotted fever, with which our epidemick is supposed by many to hold considerable propinquity as to cause and nature. The author of the work last noticed is of this opinion; and I confess myself disposed to believe that they are not without analogy in the chief circumstances of production.

Ætiology of spotted fever, and the epidemick typhus pneumonia.

The spotted fever of New England, &c. was supposed to have its origin from a long continued prevalence of a cold, damp atmosphere, which produced the disease by robbing the body of too much animal heat. To this I object that cold, (medically speaking,) never produced *a disease*. It may render the body liable to the operation of a cause of disease previously existing, or subsequently occurring, but it can go no farther than to create *the predisposition*. Besides the body cannot incur any material loss of natural temperature, (under common circumstances,) except in consequence of a *previously diseased condition* incapacitating it for the generation of animal heat in the ordinary quantity. The diseased condition must be antecedent to the loss of necessary vital heat. The Esquimaux* and the Icelander, live without any disease from defect of temperature, in a climate where brandy will congeal in the open air for six or seven months in the year. The body retains its natural heat too in the “frozen air” of Labrador and Spitzbergen.

* The Esquimaux never has any other fire in his hut than a lighted lamp made of the seal oil.

Cold may occasion liability to a particular species of diseased condition. *Inflammation* will result from a degree of cold which shall create a lost relation of physical power in parts. But even here *cold* is not *necessarily* the agent of mischief, without it kill a part. The inflamed condition results from subsequent error in the treatment of the part, or the state of the body. It is possible, and with proper management may always happen, that the body may be restored to perfect health without the intervention of any disease, even after it has been reduced by cold to a state of apparent inanimation. As we see in asphyxia from that cause. When the body gives us the loss of temperature and at the same time the evidences of disease, the cause of disease (except it be simple inflammation,) has been operating so as to produce the defect of heat, through the medium of *diminished health*.

A cold, *damp* atmosphere would probably rob the body of its heat more rapidly than a cold, dry air, and by carrying off too much natural stimulus in this way, may interrupt the function of the capillaries, and diminish cutaneous perspiration. But whether such impediment of this function would have any agency in producing *such a disease* as the one we are considering, I am not sufficiently fond of conjecture to examine. I am disposed to believe it alone would not.

Travellers who appear entitled to credence, mention the common occurrence of an epidemick in the northern parts of the European continent, whose character (as detailed by them,) is very analogous to that of our late American epidemick. The French army of invasion suffered by it in penetrating into Russia in the fall of 1812. It is said to prevail for six or eight weeks of periodical *warm, moist* weather, immediately antecedent to the change to severe cold.

Earthquakes.

The epidemick of Maryland has been recently attributed to "a defect of vital air" in the atmosphere, effected by a "something" evolved by earthquakes. What the "something" extricated is, we are not informed; and of the existence of any thing thus extricated, and possessing properties destructive of atmospherick oxygenation, we have no other argument than fanciful assumption.

It is unnecessary to review the history of volcanick countries, or those where earthquakes have been frequent. Epidemick diseases are occasional in such countries, but there are no facts to prove that in them, earthquakes and epidemicks have any necessary connexion; or if there were, that the latter are a consequence of a "something" extricated from the earth, "fitted to rob the air of its

oxygen." Other causes less obscure and imaginary than this infernal devourer of vital air, and dependent on local changes thus produced, might be made to account for the loss of health after earthquakes.

It is certainly possible that some air either actively or negatively unfriendly to health and life, may exist within the earth, and that this non-respirable gas might issue from a violation of the earth's integrity by earthquakes. But that effect rarely happens, and when it does take place, if such gas were really discharged, its operation must be transient, in consequence of its speedy dissipation; nor can it rationally be supposed that any such gas could decompound the atmosphere.

Earthquakes have been felt in our country in a slight degree at different times.

They were perceived in different places on this continent in 1732-44-55, and 96: as also once or twice since 1800. But we have never heard of malignant epidemicks succeeding to those shocks.

We have had epidemicks of almost every character at irregular intervals in America.

In '93 and '94, epidemicks of very destructive character prevailed in Pennsylvania, Maryland and Virginia. No mention is made of preceding earthquakes.

The southern states have suffered severely from occasional epidemicks, ever since their

colonization. Yet we find no record of probable connexion with earthquakes.

The celebrated naturalist of Pennsylvania (Mr. Bartram,) records in his correspondence with a London friend, in 1748 "this winter a *kind of pleurisy* is followed by certain death. But the yellow fever, the *dumb ague*, and the *pleurisy*, joined, are the chief actors in this tragick scene."

He writes again in 1749, "the sickness and mortality in our country are very great; it is a kind of *pleuritick fever*, mixed with yellow fever, or which some call Hungarian fever, with black vomitings. Few recover of this disease."

The presumptive similarity of this disease to our epidemick is too obvious to need specification. It is worthy attention as a ground of opinion that our present disease is not altogether a stranger, though its visits have been rare.

The occurrence of this epidemick was referred by the reporter to common natural causes, somewhat modified. No mention is made of attendant or antecedent earthquakes. Had any occurred they would not have escaped consideration by this proverbially acute observer.

The spotted fever of New England, with which the author of the earthquake theory thinks our epidemick nearly allied, was never imagined the consequence of any terrestrial

convulsion. No such thing has been any where hinted at. Nor do we hear of earthquakes in that country at the time of its appearance.

I repeat, that any noxious gas extricated by earthquakes must be limited in its existence, and scope of operation. The epidemick referred to that remote cause, has been felt in many and distant districts of country. If *all* the air of our continent is becoming non-respirable Providence must surely have forgotten us.

Defective oxygenation of the atmosphere.

This is considered the consequence produced by the subtle infernal agent supposed to be born as we have just noticed, of terrestrial throes, or earthquakes. It is held also the immediate* cause of our epidemick, by occa-

* I use the term *immediate cause*, to signify the incipient diseased condition. The language is philosophically incorrect, but it explains best the text I quote. Some might prefer the term *proximate*, as according to the doctrine I contradict, the defect of oxygen, is the "*ipse morbus*," the disease itself. But I reject all proximate causes, and, because they are the *disease itself*. If the remote cause produce necessarily, *an effect*, constituting disease, (no matter through what medium,) that effect is the *first diseased impression*, and cannot be dissociated from the impressing agent. It has become the *efficient cause*. To suppose any intervention between a cause and its consequence, is not only a solecism in language, but

sioning an absence or want of the due quantity of animal heat.

A defect of vital air has never existed in the atmosphere. If it did exist, it would not produce *disease*. If it could produce disease, that disease would not consist in loss of temperature.

I strike openly at the whole theory, in all its positions. With what success, I am not to determine. The proposition is mine, the right of property in opinion, another's.

The constitution of the atmosphere cannot be changed; though it may become the vehicle of qualities not its own.

The same great "First Cause" which has appointed to all creation, the condition of its being; which has erected an impassable barrier between the classes and characters of existence, from the lowest order of affinities to the most perfect state of life; which has stamped immutability on the general species,* &c. of the vegetable, insect, and more animated condition, has no doubt impressed equally its law of incapacity for radical change, on that part of its plan to which has been assign-

an absurdity in philosophy. Two *different causes*, cannot produce the *same effect*. If a cause is adequate to the production of a disease, none other can be necessary: if it is not, it cannot be called a cause.

* The opinion of Monboddo, Rosecrutius, Helvetius, and Darwin, to the contrary notwithstanding.

ed a controul over its general scheme, sensibly great to human experience, and altogether unlimited in human understanding. Those of its purposes with which we are acquainted, we know to be important; all of them we cannot compass. But whatever they are in their integrity, for six thousand years, they have been steadily accomplished. Effects have followed with an order unbroken, while this great source of capacity must have remained exhaustless and unchangeable. It exists only by its qualities; and the indispensable necessity for its existence, gives to those qualities a fixity, not to be uprooted by accident or chance.

To pourtray from fancy the general consequences of their possible subversion, is not the business of such a work as this. Mine is an humbler task; and the little light* I possess, too precious to be risked among the "chill damps of hidden possibilities." I believe from experience, and it is sufficient for me, *natura nunquam deserit prolem.*

The investigation, resulting from man's interest, in his own security against occult agents, to whose influence, experience had convinced him, he was exposed, has led to

* This is a very honest declaration. My knowledge of chemistry in particular, is inconsiderable. The difficulty of finding support in a profession too often the grave of research, shuts out many of us from that laboratory of truth.

many important discoveries. He has detected the friendly or mischievous qualities of nearly all the forms of matter by which he was surrounded. Their mechanical, chemical, nutritive, and even poisonous properties have been ascertained, and rendered tributary to his wants. Airs of various kinds have undergone a similar scrutiny; and few if any have retained a mystery. None of them have received more frequently the attention of the chemist and philosopher than the fluid in which we are constantly enveloped: and though foreign qualities are known to mingle with it, unfriendly to health, experiment has never disclosed a change in its essential constitution which could warrant suspicion as to its fitness for all the important purposes of animation.

That constitution depends upon principles which prohibit a change of character. No natural cause can ever be presented to it, sufficiently forcible to break up and suspend its general law of affinities. And when partial decomposition takes place in small portions of air, no force effecting such a change could preserve a distinct existence for the new compound, in the common circulating mass. Those new combinations of limited extent, may be effected; but they must be cut off from the common volume, and effectually secluded from the operation of its general law, if they are to be perserved for more than a moment after creation.

Definite quantities of atmospherick air may also undergo decomposition by the abstraction of one of the principles of its constitution. The air in a room sufficiently close in its structure to insulate it completely, may be so far altered in this respect by the combustion of a taper, or the respiration of one or more animals, that the taper will expire (its flame,) and the animal fall into syncope. The oxygen, or vital principle is consumed. But if a door be immediately opened, a lighted taper then introduced will burn well, and the animal revive.

An air too, (or gas,) different from atmospherick air, and unfriendly to life, may exist in the distinct or separate state. But to do so, it must occupy by its gravity situations which protect it from diffusion or agitation by currents of air. If thus exposed, it undergoes a change of condition which renders it innocuous.

It is not a little singular if defect of oxygen ever existed in the atmosphere and could occasion epidemicks, that such defect and cause have not been discovered before; and that chemists of every country should have fallen into a curious consistency in an error, which says the existence of such defect, is visionary and impossible. It has so happened that in examining atmospherick air at the distance of thousand of leagues from each other, they have all found the *same quantity* of oxygen

or vital air always present in the atmospherick fluid. The atmosphere has been measured in France, England, Scotland, America and elsewhere. It has been measured in countries convulsed and agitated by volcanos and earthquakes* and in those where "earth keeps her firm fixture,"† and rarely or never trembles, on mountains, and in vallies. In spring and summer, autumn and winter; and as yet in no place or country, at no time or season, has the atmosphere been found to contain more or less of its constituent parts in the one hundred, than seventy six nitrogen, twenty four oxygen or vital air.

* The doctrine of a "something" evolved by earthquakes, taking the place of oxygen in the air, is talked of with as much confidence, as if it were really not to be laughed at. If it were true, and the opinion be also correct, that it travels from district to district, in very cold weather, we might adopt a cunning plan of managing this ærial demon. If it were subject to the general laws of heat, cold would bring it into a smaller compass, or condensed state. In this condition of increased gravity it would occupy the space next the earth, and when we found out its habitation (by its effects,) we might confine it to the spot, by *building up round its dwelling, a close, high fence*, first inviting all the inhabitants to leave the infected district.

† I of course mean *relation* of parts; not globular fixity.

It is certainly unnecessary to travel farther in pursuit of proof, that a defect of oxygen in the atmosphere fitted to produce general disease, cannot exist. My second objection was, that if it *could exist* to a sensible degree, it would not produce *physical disease*.

Before that effect could have time to take place, *death* or *recovery* must happen.

A certain sum of vital air is absolutely necessary to animal health and life. If a subtraction be made from that sum, (and it may be reduced in confined places,) till the powers of the body, in other words, its life, begins to fall off, will those powers or that life be restored, without the lost sum of vital air be regained? No man can say they will; or he asserts that vital air is not necessary to life. Again, if when the body was strong, the diminution of oxygen affected it, and took off sensibly from its powers, will not the effect of that diminution be greater when it is weak? And how long will it live under those circumstances? Most assuredly not long enough to fall into what we understand by *disease*. Defect of vital air is the negation of a principle, without which, life cannot go on: and without life there can be no *disease*. The interval between incipient failure of physical faculty, and positive death, is too short and has too few marks of diseased condition, to be distinguished by that name. It is more

properly classed under the head of fatal accidents.

If a man were placed in carbonick acid gas, or any other non-respirable air, or submersed in water, or had a rope drawn tight about his neck, we know that death will ensue; and that a very limited period only is necessary for its occurrence. Nothing more ensues necessarily to those causes, than defect of vital air. But if we extricate him from the air or water, or cut the rope early enough, to permit the restoration of life, he will not upon recovering, exhibit a case of *typhus pneumonia*, or any other *disease*. Experience says the recovery is as complete, as the failure of power, was sudden.

The third objection, viz: That if defective oxygen *could produce disease*, that disease would not consist essentially in *diminished animal temperature*, has been already established, (or presumed to be so,) in the first paragraphs, under the head "ætiology." My reasons are there proposed, why cold cannot produce such an effect, or why the absence of heat simply, though it may kill the body, will not create *physical disease*.

I shall add but little to the remarks made on this subject in the place refered to.

It has been presumed that the general or atmospherick defect of oxygen, brings the body to a point of diminished temperature, bordering on disease. That cold from with-

out, or other causes reducing the temperature still lower, readily throw it into actual disease. But the disease occurs when cold cannot be acting as a remote or immediate cause. It attacks persons who are well clothed, who have not been previously exposed, and who immediately antecedent to the attack, were unconscious of any defect of temperature. It frequently makes its assault also, upon persons in bed and asleep; of course comfortably warm. If it be said here that cold before going to bed has accumulated excitability, (often made the plaything of medical folly,) on which the detained heat of the body after being in bed, acts, producing disease, then the first evidence of that disease, should be increased excitement, not chill or ague. If coldness in the incipient state of disease, be the evidence of defective atmospherick oxygen, nearly all febrile diseases result from that defect. For nearly all have the precur-sory chill. And this being granted, human condition exhibits a melancholy picture; hu-man life is indeed "suspended on a slender thread."

In denying the direct agency of cold in producing disease, I have also asserted, if it could produce disease when occurring from defective oxygen, the application of heat*

*I question whether a very cold body can gain much in temperature, from the chemical property of elementary heat, a dead animal body is certainly a

alone, would not produce recovery. To obtain the clearest perception of the operation of agents, it is perhaps best to regard the body in its most simple state of life. On this account I have in one or two places, directed a view to the state of suspended animation.

A small diminution of animal temperature, will not occasion defect or suspension of vital and animal functions. A considerable loss of temperature will have this effect. Some heat (we can establish no positive quantum,) is necessary to health and life. But though a sum of temperature (*majus aut minus,*) is necessary to both, the continuance of either does not depend on the presence of *heat alone*. Vital air, and respiration are indispensable to life. Foreign heat cannot give the first; nor can it produce the other except under certain circumstances. These are a capacity in the body to be acted on by heat *as a stimulus*, so as to exhibit in consequence the operations of life. If a body be in the state of suspended animation, (with this capacity remaining,)

bad conductor of heat. In the living body also in the state of chill, we find it difficult, (if it be possible in fact,) to communicate warmth from abroad. When we thus succeed in warming the body, it is probably by stimulant impression on the living principle. The body too in many diseases is very cold on the surface, when *great internal heat* is complained of. The vital actions being weakened, the body appears to possess little capacity *as matter of conducting heat.*

heat applied under such circumstances, may excite (by its stimulant property,) the languid vitality, to a renewal of the vital motions and first respiration. The action of the heart* is next aroused: and the dissevered chain of vital and animal functions, thus gradually and fully reestablished.

It is thus I would explain the experiments of the French philosophers who have seen suspended life (from submersion,) come into renewed operation under the action of the sun alone. The heat diffused (no matter how,) by that great source of calorick, impresses (or stimulates,) the remaining vital capacity into a renewal of the vital actions. The first effect, namely, partial respiration, brings the body under the controul of its natural and *essential* stimulus; the blood's oxydated condition.

When however science and humanity appeal to experience, they are taught that the stimulus or *heat alone*, is frequently inefficient for the reproduction of the vital and animal functions. The life of the body being *very much reduced* we shall in vain solicit its operation by foreign heat however elevated in degree; or long continued. We must supply directly a defect resulting from suspended respiration, viz: imperfect oxydation of the blood, or the total negation of that condi-

* By the stimulus of newly oxydated blood.

tion. For this purpose pure or vital air must be thrown into the lungs, for though they contain air, it is unfit for the purposes of life. mechanical or artificial respiration must for a time take the place of the lost natural function. Nobody I imagine has supposed that *mere inflation* of the lungs could produce renewed vital actions, or that to attain the benefit anticipated from artificial respiration, a *heated** condition of the air we inject, was necessary. No rational man has attempted to revive what is called a drowned body, which had been taken out of cold water, by subjecting it to submersion in water made *hot*. Neither could a body thus fallen in its vital condition, be reanimated in a disoxygenated atmosphere, however raised in temperature. The unfortunate victims of Asiatick barbarity could not have wanted elementary heat, in the black hole of Calcutta. Nor does the wandering Arab of the desert, find the Sirocco least pernicious, when its temperature is highest.†

* It should be of pleasant temperature.

† I do not suppose the air of the desert non-vital from "defect of oxygen." I rather imagine that excessive heat long continued, exhausts (as a stimulus,) the capacity, or principle, of life in the body.

*General remarks on stimulant forces, and
their application to practice.*

We are often reminded that “he who undertakes to instruct, should first take care that he does not require teaching.” I am satisfied that I fall fully within the scope of this maxim. In my notice of the following subject, it is probable I shall be found rather the curious traveller than the skillful surveyor who measures his steps by the principles of geometry. But I think we should not hold the profession as a sinecure, nor wear the title* of office, without attempting a discharge of its duties. Errors in sentiment may be forgiven, but *bare contradiction* is justly offensive.

Apart from testimony which I feel a proper disposition to respect, I should conclude that there are few conditions of the animal system, which demand the sum of stimulant operation, indicated to have been necessary in the diseases exhibited in the narrative part of this essay. When the body has been thrown suddenly into the state of asphyxia, by cold or other causes, the remaining susceptibility of the vital system to impression, is sometimes so partial, as to require the most powerful exciting causes to arouse an evi-

* Unde doctoris titulæ nisi ut doceant?

dence of life, or a renewal of that vital exertion, on which the recommencement of the animal functions depend. But when this is effected, when the vital principle affords us an evidence of its sensibility to stimulus, we cannot safely urge upon it an augmented impressing force: we shall probably gain more by apportioning the stimulus to the capacity for bearing impression. A man taken out of frost, destitute of animation, might require a powerful stimulus (volatiles, for instance, applied to the most excitable instruments of sensation; or general friction.*). But if the application were successful in arousing partial signs of life, should we not by exhibiting a more powerfully stimulant agent, exhaust the capacity or principle, and extinguish the

* I know that the common practice is to rub such persons with *snow*, &c. and that such application is said to be a *low degree of stimulus*. But certainly the simple *application* of snow in the open air, could not stimulate or restore him. It possesses no quality which could have that effect. For (I presume,) it could not there be higher in temperature, than the air in which he had suffered. It is the *warmer* air of the room to which he is removed, or the *friction*, that stimulates. Snow applied to a *part* endangered by cold, may be useful in preventing mischief to that part, by taking off some of the blood's heat in its passage to the part, after the system has been excited by a warm air, and thus prevent its stimulus from exhausting the reduced life of the part. But not by stimulating such part.

life we had rekindled? If we lay such a body in which life was just awaking, (if the term be admissible,) before a large fire, will life continue? Facts often exhibited in the case, but more particularly by experiments on animals in the torpor of hibernation, say it will not. The falling into death here, must result from exhaustion, and that exhaustion be dependent of necessity on stimulus, as we are aware that fire, (or heat,) possesses no specifick morbid quality; that it only stimulates. After a few glasses of brandy, the muscles lose their vigour, and the man begins to totter, or reel as he walks; if a few more be taken, they become powerless, and he falls. While lying in this state of torpor, if we raise him up and pour down his throat half a pint or a pint more, if the stomach do not reject it, will it reinvigorate him, will he get up and walk? or become less sensible, fall off in temperature, and perish. On the same principle, infants, and children a few years old, will be made drunk and deprived of life, more readily than grown persons. I may possibly be charged with error in this particular, on the authority of the Brunonian doctrine; which says that children are more affected by stimulus than others, because they have more *excitability*. But that doctrine says also excitability is *life* or the principle of life, and as life, or the principle of life, is *power* or the *capacity* for exertion; if the doctrine were correct, chil-

dren would have more strength and energy than adults. When from any cause, food and drink have been withheld from an individual until the body has fallen very low in vigour, if a moderately full meal, or a quantity of brandy, which he could drink without inconvenience in health, be taken suddenly, he sinks almost immediately into convulsions, or stupor and coldness, from which he recovers no more. The demand for energy was too great for the capacity of the vital system; it could not supply the organ, and the function of that organ was suppressed or overwhelmed.*

The term torpor, or morbid inirritability, has been used sometimes in contradistinction to debility. And on the peculiar condition to which the term is appropriated, has been rested the propriety of free stimulation. The distinction is certainly just in part. Morbid causes inflicting violence on the vital functions, whether from excess of cold, gaseous, mineral, or vegetable poisons, in short, any cause producing suddenly, or by their protracted

* Such a person, as also the man recovering from suspended animation, would bear a greater sum of stimulant force, *after the animal actions had been going on for some time under the operation of a less, and had increased the actual quantum of life.*

operation, a defect of animation,* may induce torpor.

We cannot always detect the causes which create a difference of susceptibility to impression. We know that it is different in different diseases; and in the same disease in different persons, when in both cases the sum of actual physical infirmity is apparently equal. We know also the sensibility to impression, varies in the same person, in the same disease in its different states. These are important considerations in all diseases of reduced vital energy. But whatever the cause or degree of original insusceptibility, when the lost capacity for impression has been restored; when either by foreign aid, or the unassisted powers of the body, the vital system has regained a sensibility to ordinary stimulus, the state of sensitive debility succeeds to previous torpor, and in proportion to the degree of that debility, will be the aptitude to impression, and *incapacity to bear an active impressing force*. We see this fact every day in ordinary chill. We find the same body presenting two very different states in the lapse of one hour. A stimulus which could not be felt when it was cold, will give us a direct and powerful operation when the natural heat is reestablished.

* On the authority of the best lexicographers I use *animation* as synonymous with *sensibility*, or the possession of active life.

If the stimulus be continued in this state, some organ will fall into suffering, under the general action; or that action urged to excess, and protracted by frequent repetition, will exhaust the principle by which it is supported, and the body sink into extreme feebleness, or death; we have shewn that these effects may be produced by prolonged excitement from free stimulation, even where no antecedent torpor, had increased the hazard of such a consequence; as in drunkenness, &c.

It is possible too, and ought not to be forgotten, that we may be very much imposed upon by the apparent state of the body, when it has been thrown by any cause, into the torpid and chilly condition. Its powers, may be so far subdued by that cause, as to be unable to give us afterwards, the evidences of complete reaction. From the positive waste of vital energy by the cause which had subdued it, the body is in a mixed state, between fever and torpor. It has recovered so far as to accomplish imperfect reaction, but the loss of vital energy has been too great to permit its complete reestablishment. Hence we have occasional flushings, of heat, anxiety from disordered sensations, local pain, weak, irregular pulse, &c. If such were not the fact, if this were really the state of defective animation, or unsusceptibility to impression, alias torpor, we should not have the complaint of heat, anxiety and distress, pain, &c.

for the torpor of defective capacity to be impressed would give us defective or absent sensation, as we find in the stupor of typhus gravior, where the mind is unobservant of every thing, and the body insensible to the brandy, blisters, &c. with which it is liberally plied. If the pathology of the case above stated be correct, powerful diffusible stimuli by giving occasion to a greatly increased exertion of the slender stock of vital energy, must exhaust it; and the action dependant on its existence, cease to be performed.

I have admitted that in some states of disease an extraordinary sum of stimulus was necessary to produce a moderate sum of stimulant operation. Writers inform us that in certain states of fever, large quantities of wine have been exhibited in a short interval of time. We find this a common practice in that state of typhus of which I have just spoken, the stupor, &c. of typhus gravior. But even here experience has limited us to a kind of stimulant less fitted to provoke excessive or irregular action, than any other (of the same class,) with which we are acquainted. Good wine is supposed to afford the system an alimentary material, *and while it stimulates gives the capacity to bear stimulus.* The best British writers who are advocates for the use of wine and malt liquors in this form of fever; tell us that their patients did not derive equal benefit from distilled spirits and other diffusi-

ble stimuli. Wine was found a grateful cordial when the more powerful agents, as opium, æther, brandy, &c. would defeat the contemplated object, by arousing an excitement temporary and weakening, because demanding an exertion of the acting powers, which they were unable to continue. Such is the effect even of *wine* when exhibited in large doses and carried beyond the amount necessary to accomplish a determinate sum of action. The writers who are authority for its liberal use in the atonick states of fever, inform us that they were compelled to retrench the quantity after a given degree of excitement had been produced. If the same quantity were exhibited after this was effected, they found the intellect disturbed, and the body falling off in power in consequence of too great demand on the vital energy, and the waste of animal faculty from disordered arterial action.

It is of very great importance too, to remember, that there is always found a material discordance in the effect of stimulus in the simple state of atonick disease, and the atonick condition when complicated with local organick affection. If any important organ or sensible part is in a state of particular disarray or suffering, an exciting cause will give occasion to an effect much greater than when such local condition is absent. If inflammation of the brain, throat, lungs, or bowels, coexist with the low gradation of fever, or atonick states

of the general body, however greatly it may require support; at least one half of the stimulus it would bear were no such affection present, is taken out of our hands. The affected part is incapable of bearing their operation, it would give the alarm upon their introduction, and the body sympathise in its aggravated disorder. For it must obey its principal law, that of sensation.

We are told that local affections are sometimes relieved by partial or general stimulus. This may be explained in conformity with our general position. *That weakened parts are most sensible.*

Those (local) affections are known to exist; by *pain* in the part, which may be the consequence, either of inflammation, or an incompetency (without inflammation,) to perform the natural actions, thus incurring disordered sensation. As in parts weakened by cold, fatigue, or physical disorder of function.

In either of those conditions (inflammation or incompetency,) a local stimulus, as a blis-

* **Blisters**, (on the side for instance, in pain of the chest,) have been supposed to act in one of two ways. To give relief either by *counter irritation*, or by the *discharge* they provoke. A counter irritation could occur only where the part affected, and that to which the blister plaster was attached, were supplied with blood by *branches of the same series of vessels*. In such cases by reducing the resistance (or tone,) of the vessels of the part to which it was applied, the blood

ter,* or any thing immediately stimulant, may give relief by exciting more especially the action of the part. If it be inflammation, the vessels of the inflamed part may be roused to a contraction (or action,) sufficient to expel the superabundant blood which constituted the inflamed condition, and thus produce relief. This could not happen if the general action which had caused the infarction of the part, was equally roused by the stimulus. But as inflamed parts are *more sensible* than the rest of the body, a stimulus which would act upon them, would not produce general excitement.

On the same principle, an internal stimulus of moderate force, would by *producing more impression on the inflamed part*, than on the system generally, excite its vessels to a contraction or action, by which they would effect a discharge of the excess of blood from which they were suffering.

finding an easy passage into them, (by their dilatation) part of the impetus might be taken off from the original inflammation. *But only where there was this vascular connexion*, which does not exist in the case supposed. As to relief by the discharge. A quantity of blood greater than that of the serum effused under the operation of the blister plaster, may be taken away by cupping, without relieving the pain of the pleura or lungs. Besides the pain is commonly relieved *as soon as the flies begin to act*, and *before any effusion of serum has taken place*.

In *weakened* parts also, (without inflammation,) where there was pain from defect of natural action, being more sensible to impression in consequence of their weakness, a local stimulus of force, proportionate to their sum of life, or capacity for bearing impression, would restore the quantum of action which constituted their healthy state; and necessarily effect a relief from pain. An internal stimulus would, under similar circumstances, give us the same result. The part would acquire from the stimulus, more activity than any other equal part, and thus ascend to an equilibrium with all the rest, in action and sensation.

But on the other hand, if the local stimulant, in the case of inflammation, was so powerful as to excite a considerable general action, the part would lose by its operation. For the cause by which it had first suffered, the action of the heart and arteries, being directed against it with increased force, the local mischief must be augmented. The same consequence, but in a greater degree, would result from an internal stimulus. Though the vessels of the part might empty themselves on the first impression of the stimulus, (which they would feel *most* sensibly,) yet the increased general action would be immediately exerted on them, reproducing the same condition. The part being weak, if the stimulus were continued, the mischief must be greatly

extended; and if the part were also delicate in structure, and exposed to the general force, as in the lungs, effusion to a very hurtful degree, or organick lesion, and if the stimulus were urged still farther, even gangrene, must ensue.

By the same rule, if a stimulus greater than simply *weakened* parts required, were applied to them, either their living principle would be wasted so as to weaken them farther, or exhausted, so that they would die. Or a general increase of action being roused by the irritation of that stimulus, or the operation of an internal one disproportionate to their capacity for resistance, (or life,) the part must be thrown into inflammation or sphacelus.

Though I have proposed objections to the unmixed stimulant plan in the varied states of any general disease, I am prepared to acknowledge that the testimony of a sick-bed will in particular cases, contradict the deductions of abstract reasoning. I think however, we shall always proceed most safely, by following the paths of nature. She often requires our aid in repulsing disease, but we must assist her on her own principles. *The most important one, is physical capacity to bear exertion.* I believe that cordials (stimulant ones if necessary,) are better props of a falling body, than diffusible stimuli which excite actions they afford no power of continuing. For they possess no properties which

the body can appropriate to the purposes of support. On the evidences before us I readily admit they may have been sometimes useful. I must be permitted to think also, that they have often done harm. A physician who has collected with considerable industry, the records of successful stimulant practice in the spotted fever of New England and New York, who himself enforced and inculcated that practice boldly and earnestly, has candidly appended as a summary to his inquiry, that he believes the stimulant plan had been often abused, and unfortunate, but that its misuse was less dangerous in his opinion, than errors in evacuation.

The remarks on the pathology of local affections in diseases of general debility, will (if they are correct,) lead to inferences opposed to the propriety of the highly stimulant plan, in diseases of that order. Those inferences will regard more especially the typhous pneumonia, now so prevalent in our state. That with the general infirm, and on that account excitable state, of the acting forces of the body, we have local affections of serious character, does not require proof. The most important of those affections is a weakened and inflamed structure of the lungs.* They

* I have examined three bodies said to have lost their life under the operation of this disease. In all of them there was pulmonary inflammation. In each

are organs too important in the œconomy, and too susceptible of injury, to resist successfully when weakened, the hurtful agency of a disproportionate force. Though that force be far below the natural standard of general action, if it be relatively too great, it will readily enlarge the sum of local injury. While there is pain from that force, and on account of that pain difficult respiration, while there is with the pain, great excretion of mucus either tinged or not with blood, and distressing cough, the general action (though considerably reduced,) cannot be urged by stimulus, but at the imminent hazard of life. I will not anticipate in this place, the brief notice I contemplate, of the treatment of our epidemick. But having just past over the general ground on which I would rest the estimate of stimulant agency in that, *and every such disease*, I wished to secure for that general basis, all the considerations it may be entitled to.

Catharticks.

In the treatment of spotted fever, catharticks appear to have fallen into very general

of them the left lobe had suffered most. In one of them, that lobe was very dark down to its root from effusion of bloody mucus into its cellular structure. They were examined in very cold whether, when probably little if any change had taken place subsequent to the period when life ceased.

disuse and disrepute. Some gentleman however exhibited calomel, and they say with good effect. I am disposed to believe that they were exhibited improperly at first, and too much neglected afterwards. Few states of fever can exist without requiring evacuation at some period. When the body in maculated fever was roused from the state of torpor, when obstinate vomiting came on, great heat, anxiety, restlessness, and pain of the bowels, head, &c. ensued, could not the body bear evacuations from the bowels, or a gentle emetick? Would they not have been useful? Were they not necessary. Where the tongue is foul, heat, head ache, and thirst great, bowels painful and costive, how often do we obtain relief, by opium, æther, and brandy? We are told those were common, almost constant attendants on spotted fever. While universal coldness continued, evacuations were unnecessary and improper. But does not that very state almost uniformly create a necessity for subsequent evacuation? Why is bilious vomiting the general attendant on chill? When the body is falling into chill, what becomes of its blood? As it cannot be found on the surface, (in the usual quantity,) if it is not dried up we must look for it in the large vessels. Does the blood stimulate the organs to which it is distributed? Then what effect has the augmented quantity of blood in the vena portœ? Does it stimulate

the liver to increased exertion? And if it does, shall we not have an extraordinary quantity of bile thrown into the duodenum? Will this bile irritate? I believe we must admit that it is to an irritation thus produced, we are to look for the chief cause of the spontaneous vomiting which almost uniformly ensues to chill.

A debility prejudicial to the body is by no means a necessary consequence of careful purgation. When a local irritant is acting on the body, which evacuation can remove, or when from any cause disordered arterial actions have been excited, catharticks judiciously administered, will produce an improved state of general sensation, by carrying off the one, or calming the other. The pulse becomes more natural, and if before small, (from morbid stimulus or irritation,) fuller. If names could properly be thrown into the balance of opinion, Sydenham, Hamilton, and in our own country, Rush, bear ample testimony, that the body often rises from a state of prostration under the operation of purgatives. How is the body relieved from torpor, tremor, and feebleness, when morbid agents (poisons,) which had produced those effects, have been ejected from the stomach? or in dysentery, colick, &c. by evacuations from the bowels?

A gentleman who has examined with very meritorious industry, the fitness of the different remedies used in typhus pneumony, (the

Maryland epidemick,) has said of purgatives, "As to the idle notions of cleansing the primæ viæ, and throwing up *bile* from the stomach, the whole matter is so perfectly absurd, that I think it a waste of time to say a word about it." It can scarcely be wrong to return the compliment we have received upon the occasion;* "He has eyes, and sees not, understanding, and perceives not." It will form a curious (and I declare it is a very good naturalled,) illustration of the application of the retort, to quote this gentleman's remarks in another part of the same work: viz. "That great internal heat was often complained of in this epidemick, a symptom new to me in pulmonick complaints, but which I had often met with in intermittent and remittent fevers." I would inquire very civilly, whether this gentleman has ever indulged the *idle notion*, of "cleansing the primæ viæ or throwing up *bile*, to remove the great internal heat of remittent and intermittent fevers." We are informed (by himself,) that he is in the habit of giving *pukes* (see the story of his friend and the blue stone,) for intermittents, but it may possibly be from other *notions* than those of removing great in-

* I am really unwilling to be thought captious. But when the *opinions* of one gentleman press heavily in their detail upon the *practice* of others, self defence is not only a right, but the importance of the subject renders it a social duty.

ternal heat, by throwing up *bile* and “cleansing the primæ viæ.”

Is it true that the experience of past ages, and of every day, is a fallacy? That physicians have been grovelling in gross error, in supposing that by cleansing the primæ viae, they could free the system from causes of irritation unfriendly to its security; that they could arrest disordered arterial actions, resulting from internal causes of irritation? Is the plan of nature herself absurd in appointing periodical evacuations for the body? Does the proper performance of those evacuations depend upon the healthy state of certain secretions in the body? Is the bile a product of one of those secretions? Do diseased conditions of the body disturb those secretions? Do they alter the properties of the matter prepared?* Does it become by this alteration a cause of irritation which it is necessary to remove? Is nature acting unadvisedly and

* The liver, when the health of the body is disturbed, secretes a bile changed in its qualities, in the same manner that the lungs (and other viscera,) modify under similar circumstances, their appropriate secretion. The latter excites irritation and cough, the former produces irritation and vomiting. Generally perhaps, the material is in both, the natural excretion imperfectly prepared, in consequence of general and organick disorder, or want of natural power. But the kind of local disorder (from a peculiar cause,) may constitute a diversity in the nature of the secretion.

foolishly in endeavouring to throw out of the body offensive materials. Would it be better that she should retain an excreted material which in the lungs provokes cough, in the stomach vomiting, in the bowels catharsis? If those materials were *innocent*, would they produce such effects? Are *we* deceived by our senses, the *patient* by his sensations, when we find the body after the evacuations of the first passages, relieved from previous irritation, distressing heat, and local and general disorder; when we find it tranquil and easy? This gentleman says he administers emeticks in bilious fevers, I presume he administers (or he has a practice truly his own) catharticks also. Why does he give them? Because there are offensive materials in the body which it is necessary to remove? Something occasioning *great internal heat*? or is it only from an *idle accordance* with an *idle notion*.

When local derangement or disordered condition (inflammation for instance,) exists, the general body, if the part be an important or sensible one, will feel that derangement. It will be thrown into diseased and wasteful action, and we shall find it necessary to take off that sympathy with the diseased part. We can suppress or subdue it only by evacuation of some kind. If the body be weak, and bleeding is improper, nothing can meet the demand so well as moderate purgation. The part

being inflamed or deranged in function is more sensible than natural, and hence the expression of pain. By abstracting from general action when it is too great, either directly or relatively, we take off the morbid sensibility of the part, the result of too much impressing force, and *the cause of the continued exertion of that force*. If the latter be sufficient (and if it were not, no pain, would be felt,) to keep up or extend the local derangement giving pain &c. such painful condition will necessarily give occasion to continued exertion of that force, or action. For the evidence of the living condition, in other words all animal action, is an obedience to the laws of physical impression and perception.

Application of Elementary heat and Sweating.

The application of foreign heat I think one of the best modes of external *stimulation*. I have said in a preceding part of this essay that I thought it questionable how far we could calculate on the restoration of lost animal temperature, by a *direct communication* of foreign calorick. When we succeed in reproducing general warmth by the application of elementary heat, we accomplish the effect by a stimulant impression on the living principle, and through the medium of actions in the body, answering to that impression. In the

forming state of the disease (or the epidemic,) we have been considering, foreign heat would no doubt be useful. We want a certain sum of *action* in the system. And if elementary heat were used with a view to the elicitation of that action, *and that only*, I know nothing which could properly take its place as one mean of fulfilling the indication.

But it is not probable that if foreign heat were urged so far as to provoke free *sweating*, we should gain by the result. Very few modes of *evacuation* are more enfeebling than *free perspiration*. However produced it is an *evacuation* and a very direct and sensible one. That it is always or even frequently useful in diseases of languid excitement, is a presumption warranted by no satisfactory evidence. Like wasting diarrhea, it generally ensues to that state of lost vigour in which the body is falling into ruins. And it then always accelerates the event, the approach to which had produced it; a total loss of tone, or the complete absence of the living condition. The testimony of experience is so ample on this head, that we find the respectable writers of Europe, where fevers of the typhus character are more common than in our country, inculcating the necessity for arresting the sweats which those fevers frequently occasion. In the petechial or spotted fever particularly, the sweating state has been pronounced seriously hurtful. Mr. Wilson who

has consulted the best authorities on the subject, advises that this consequence should be guarded against and suppressed, if possible, when it occurred. Dr. Cullen to whom this state of fever was familiar has directed us to dread nothing so much in their treatment as free sweating. That the hazard of inflicting injury in an attempt to restrain them even by the use of cold water, was trifling compared with the sure consequence of their continuance.*

It is said that the disease to which our view is more particularly directed, (the epidemick of the last few years,) is one inducing great physical *weakness*. And the object of primary importance in combating it, the preservation of the body's heat. I imagine that *free sweating* must always *diminish strength*; it also dissipates very rapidly animal *calorick*. Those consequences in fact are no longer speculative; we hold them on the ground of positive knowledge. Sweating is neither useful or an argument of improved condition save when it is the result of recovered natural action. And when we succeed in restoring that action so far that natural perspiration commences, if we urge that consequence

* A malignant fever (it is doubtful whether epidemick or contagious,) has twice prevailed in London, whose diagnostick trait was copious sweating, this mark of the disease gave it the name of "sweating sickness." The arrestation of the sweat was the first indication of amendment.

farther, we waste strength, both by excessive action and *evacuation*. In regard to sweating provoked by external heat, I repeat, that when the body is *cold* and *weak*, free perspiration must be decidedly mischievous. It cannot remove from the body a *cause* of disease; and if so much renewed heat could for a time be presented, as to prevent the body from growing *colder* than it was, under the sudorifick and vaporatory process, still that consequence must have a period, when stimulus had exhausted the capacity to be impressed; and if the stimulus were great, and the capacity (or life,) trifling, that period could not be distant.

Characters of the prevailing epidemick.

THE term *typhus pneumony* has been used in the preceding part of this easy, as more appropriate than any other to the general character of the disease commonly known by the name “prevailing epidemick.” It is significant of the disease however, only in its majority. And comprehends besides the strictly pulmonick affection, the varieties, of thoracick disease denominated pleuritick. I would include under the same head also, a

form of the disease having more analogy to the cynanche maligna of nosologists, than to peripneumony.

The epidemick so far as it has fallen under my notice, is a compound generally of pleurisy and peripneumony. Upon the occurrence of chill, always a primary symptom in a greater or less degree, a pain is felt in either side, most commonly the left. This pain varies very much in the degree of severity in different cases. Like the pain of pleurisy it is aggravated in every attempt at full inspiration. But it does not remain long fixed; a few hours after it is first perceived it changes its seat, and is felt higher in the side. Or what is most common, it declines in severity in its original seat, is more diffused through the chest, becoming less acute, and giving us in this particular, the character of peripneumony. The pain and tenderness of the lungs rarely passes away entirely, during the progress of the disease. It is complained of, though in a diminished degree, even after the general disease has been very much subdued.

Cough is not generally of early occurrence. The pain, &c. is often present for one or two days, before the disposition to cough is frequent or troublesome. And when we meet with it, it is commonly after the pulmonick symptoms have succeeded to those which were more strictly pleuritick.

In this respect it differs from ordinary pleurisy and peripneumony. In those the cough is an early and troublesome symptom.

In a few cases however cough occurs early, and unlike the cough of common pleurisy, &c. is productive from its first existence of free expectoration. This is generally when the pain is severe, and of the pulmonick character. We then have the expectorated matter tinged (sometimes very much,) with blood. In lighter cases we are almost without cough throughout the whole disease; notwithstanding there is considerable uneasiness of the side and chest.

The degree of fever immediately subsequent to chill, is very various in different cases. Sometimes it is fully formed in an hour or two from the attack, and except in the force of the pulse we have all the indications of high action, common to ordinary pleurisy, &c. But again in other cases the fever is imperfect in its expressions. The general heat not greater than natural, with occasional alternations of rigour, and the extremities rather cool: the pulse small, quick and irregular. Occasionally we meet with all the evidences of violent peripneumonick affection, *except in the pulse.* We have flushed face, pain in the chest, cough, free expectoration (sometimes bloody,) and great anxiety of respiration. But the pulse neither fuller, stronger, or more frequent than in health. It

is the pulse of health, except in vigour; it does not resist pressure.

The state of the pulse is in all the forms and degrees of the disease, sensibly different from the pulse of ordinary pleurisy and pneumonia in the particular just noticed. The degree of resistance to pressure.

The head is variously affected in this disease. It exhibits every degree of disorder, from simple pain, to the most disturbed state of intellectual derangement. When it is very much disordered early in the disease, pulmonary symptoms rarely exist (except anxious respiration) in a great degree at the same time.

[In this respect also it differs from common pneumonia. In the latter much pain of the head, or disarray of intellect is rare, except as a temporary consequence of unusual arterial excitement, and subsiding when that is reduced.]

The face is in all cases of typhus pneumonia (except in old persons,) *very much flushed*. Whatever be the degree of fever this symptom is almost invariably present, after the first twenty four or thirty six hours. When reaction takes place early, and fully, the flushing occurs sooner.

The epidemick has considerable analogy in this particular with bad cases of what has been called pneumonia notha.

Anxious, frequent respiration, accompanied with repeated sighing, is universal in typhus

pneumony. It is greatly distressing to the patient, and even the observer. There is little difference in this respect, whether respiration is painful or not.

In common pleurisy and pneumony, the respiration if not painful, is rarely much disordered.

Extreme loss of physical power, (or strength,) is almost an immediate consequence of attack in typhus pneumony. This infirmity is remarkable even in cases comparatively mild.

No other disease produces an equal degree of positive weakness in the same space of time.

Great nausea, and free and repeated vomiting, are common in this disease.

In ordinary pleurisy, &c they are less frequent.

The feebleness and irregularity of the pulse, or if tolerably full and regular, its softness and compressibility, pain of the side, anxious, sighing respiration, constant flushing of the face, and extreme loss of animal vigour, offer the best diagnosticks of this disease.

The particular symptoms.

CHILL.

'The chill in the incipient state of the disease, is in no respect sensibly different from

that of severe remittent fever. Like the chill in the last disease, it is irregular in its duration and degree, and in like manner attended with head-ache, and frequently nausea or vomiting. In a few cases too, it has the remittent character, in a repetition (though irregular,) of occurrence. Pains of the limbs are common as in remittent chill.

FEVER.

The fever subsequent to chill is various in degree, and equivocal in its expressions. The heat on the surface is not so great or general commonly, as in ordinary fever. The pulse is scarcely ever full and round, never hard: generally small and frequent. Internal heat is complained of, head ache or disorder of mind occur, with great anxiety and frequency of respiration. Thirst rarely considerable, tongue moist.

When the disease is severe, its first sensible impression on the body, appears to take off so much from the vigour of the animal functions, that what is called full or free reaction, cannot take place. Hence we have feebleness of the pulse from positive weakness of the heart and arteries; and the anxious, and partly voluntary respiration, (or sighing,) from debility of the respiratory muscles. The frequency of respiration is in accordance with the increased frequency of contraction in the heart,

&c. from the impression of the morbid cause. The breathing may be anxious or difficult when the pulse is slow; but it is rarely very frequent when there is not quickness of pulsation.

THE FLUSHING

Of the cheeks is through all stages of the disease, a consequence of weakness in the small vessels of the face. They become injected with blood, and have not tone enough to empty themselves fully. It is partial inflammation, wanting only previous local injury, or sufficient "vis a tergo" to make it complete.

THE PAIN

Of the side and lungs, is from real inflammation, various in degree in different cases. When severe we have copious excretion of mucus, sometimes bloody from the rupture of small vessels.

In the limbs,—From imperfection of natural action as in debility from cold, fatigue, &c.

In the head,—From the same cause, as we find in the head ache denominated nervous. Sometimes delirium ensues to this defect, as in the "functiones animi turbatæ" of low typhus fever. The maniacal state is a higher grade of the same disordered function; or, the

general action being too great for the reduced tone of the cerebral vessels, partial inflammation of the brain may have taken place.* This state may be detected by extreme sensibility to stimulus of all kinds, particularly, impatience of light and sound. And by the uniform continuance of deranged mental operation; or the absence of occasional quietude and stupor.

The petechial and livid appearance.

I have met with either in a few cases only, and then not till the body had fallen very low in its powers.† When petechial occur, distinctly, they are a consequence of extravasation. The livid appearance of the surface is from defective oxydation of the blood in the parts. The vascular forces, are insufficient to carry the general mass of blood as freely as usual through the pulmonary circulation.

* In a few cases that were examined after death, from "spotted fever," the brain (it is said,) was inflamed, and a thick mucus effused under the dura mater.

† Petechial are said to occur frequently in the lower counties of this state.

VOMITING.

See the note on the action of the liver, under the head catharticks. The material discharged is generally bilious, and when provoked by emeticks or catharticks, frequently very dark.

MUSCULAR SPASMS.

Attendant on nearly all febrile diseases, when the body is low in vigour.

STRANGURY

Is said to have been a common symptom in the spotted fever of New England. In every severe case of typhus pneumonia, which has fallen under my notice, dysury, or impeded discharge of water has been very much complained of. The bladder is rarely pained. It is strictly a disability, in the instruments of ejection. The urine appears to pass off by its gravity simply, without the operation of an expelling force, and frequently half an hour or more, is consumed in its discharge. The erect attitude is sometimes necessary to favour its escape.

THE most formidable, but fortunately the least frequent form of the epidemick, is when the local affection expresses itself chiefly or altogether about the throat and fauces. The parts which constitute the superiour strait of the pharynx, are then very much swollen; the tongue also becomes greatly enlarged, and the tumor about the walls of the œsophagus in its upper part, renders deglutition and respiration painful and difficult. The impediment to both is increased by an external swelling. The general volume of the neck is greatly enlarged, producing tenderness or impatience to the touch. This form of the disease like its pneumonick character is introduced by distinct chill. The softness, swelling, and impediment to deglutition, &c. become immediately sensible, and progress rapidly. Not unfrequently a fatal termination (by suffocation,) ensues in twelve and twenty four hours.

GENERAL TREATMENT.

No definite mode of treatment can be pointed out as proper even in common cases. All treatment must rest on existing demands, and is subject to modification as frequently as the cases are multiplied. No other disease exhibits such mutability of character, and diversity of consequence in the same case in equal periods of time; and the diminished and

doubtful sum of physical capacity, renders it important to regard them all. My remarks on this part of the subject, will be general and limited. It would not gratify me to be quoted as authority by those who are *not* physicians. Nor do I pretend to intrust those *who are*. But to escape the imputation of arrogance, it is not necessary to relinquish the right of opinion.

Bloodletting.

I am in doubt whether there is any state of typhus pneumony, which will bear free* bloodletting. The remote cause of the disease induces so much general physical debility and derangement of organick function that the system cannot permit a direct detraction from the sum of blood it possesses at the time of attack. The blood is the immediate stimulus to all animal action. And the process of digestion and assimilation being very much broken up by the disease, a supply of the blood making material from this source (the only one,) is doubtful. The important function of respiration enfeebled with the

*In particular situations giving ordinarily the inflammatory character to their diseases, and in a *few cases* in any situation, moderate bleeding, early in the disease may be proper. Where it can be borne, I am satisfied it would be more useful than any other remedy.

other faculties early in the disease, becomes very much endangered when we take from the muscles that arterial action necessary to their vigour. We find this function extremely imperfect in typhus pneumonia. It is not in that disease the hurried breathing of excessive action; it is the anxious respiration of muscles weak and easily falling into fatigue. We observe it when the pulse is feeble and not frequent, and it produces in many cases great proclivity to syncope. Experience proves to us also that there is so great a waste of the vital principle in this disease that if we throw the body below a certain standard of action, we find it very difficult to prop or raise it up again. If local affections exist, we jeopardise very much the security of the part by taking off that tone dependent on the quantum of action they demand. We see this fact frequently in œdema and sphacelus, from diminished tone of action. A certain degree of arterial vigour is necessary to recovery, and if it be destroyed, a part injured in structure, will readily perish.

I have seen no case of the disease in which the arterial action could properly be called *positively* great or strong; it is often *relatively* so. Too great for the injured structure, and reduced life of a part, or such as will waste too much the enfeebled vital powers of the general system. But relative force of action is always easily subdued; and must never be

reduced very low. We have other modes of depletion which while they calm disordered actions, strike less directly than bloodletting, at the tone or necessary vigour of circulation.

The faculties of the arterial system are not in this disease in that state of oppression, which will sometimes warrant the use of the lancet, even when the pulse is small. Its faculties (or capacity for exertion,) exist but in a partial degree. The pulse is small in some diseases from excessive stimulant impression, and will rise on the abstraction of blood; but when the pulse is small from this cause, it is also *hard*. I believe the pulse is never (or rarely,) tense in typhus pneumonia. I have detracted blood in a few instances when the pulse was unusually full, and pain of the head or chest distressing. But in every attempt the falling off of the pulse, has limited the quantity drawn, to an amount considerably less than had been apparently indicated. The pulse lost its volume, and without being less frequent, became small, and easily compressible. The diminution of pain, if sensible, was trifling and temporary.

When, however, the throat is the principal seat of local affection; when the swelling there becomes suddenly great, impeding deglutition and respiration, if we can see the patient early, I think we may sometimes, perhaps frequently, abstract blood. The pulse is generally fuller in this form of the disease,

than in its pneumonick characters, and the importance of the functions impeded by the local consequences of the disease, with the rapid progress of those consequences, leave us little to hope from less direct attempts at relief. While we stimulate the infected vessels of the part into the action necessary to recovery, we must also repress the injecting force, and any attempt at the accomplishment of this object, not immediately efficient, would probably come into operation too late.

Emeticks and catharticks.

The liver is generally very much disordered in its functions in typhus pneumonia. The material excreted is offensive to the stomach, provoking free vomiting, and irritating to the system, exciting heat, restlessness, langour, &c. I have in many cases observed the hepatic symptoms predominate over all others. The head ache, nausea, and sense of oppression and heat in the stomach, are very great; nor is the system relieved from the distress they occasion until after free and repeated evacuation. The material discharge as in severe cases of remittent fever, is frequently very dark, producing by its irritating properties pain, and a sensation of heat, in its passage through the bowels.

A feebleness of pulse should not when signs of biliary disturbance exist, restrain the

exhibition or repetition of purgatives. It is a fact familiar to gentlemen who have treated diseases of the bilious character, that the pulse will improve in tone, and the general powers of the body in vigour; under their operation. When spontaneous vomiting has occurred, or the disposition to that effort is considerable, I think it may be encouraged or provoked. But the chief attention (particular where there is feebleness and languor) should be directed to the evacuation of the bowels. The system is less agitated and exhausted by this mode of depletion. Of the necessity for a continuance of evacuation we must judge from its effect; *but while it is necessary it should not be postponed.* We have not in this disease much time for delay; the capacity of the body to resist the operation of morbid causes is less perhaps than in any disease to which we are called, and has often been found on experiment an insecure resting ground. While medicines of this class are indicated, their exhibition should be continued until the disordered action or distressing symptoms have been brought into a satisfactory state of subjection. Though our attention may be directed for a time to particular demands, the evacuant plan should not be abandoned while it is proper. *There is extreme hazard in pulling down, when we have begun too soon to build up.*

When the pulse is full and quick, the respiration frequent, the head and breast very much pained, stomach sick, tongue foul, and skin dry, (all frequent symptoms in typhus pneumony,) I should never hesitate to administer evacuants with a view to *full* and *free* operation. I feel entirely convinced that under such circumstances, free evacuation is highly important, if not indispensable to the patient's security.

No particular medicine possesses magical properties. The selection of such as are proper for each occasion, must be left to the judgment of the practitioners. I have myself given a general preference to calomel, in doses of eight and ten grains, and repeated, or aided by other medicine as I supposed necessary; and have frequently exhibited from thirty to sixty grains, in one and two days. Less active medicines however will effect the sum of evacuation many cases require. When the evidences of morbid biliary impression on the system, exist but partially, or are altogether absent, so much evacuation only is necessary, as will preserve a proper balance between the general acting forces, and the capacities of affected parts or organs. While a force too great for the security of a part is checked or repressed, the ultimate security of that as well as of the general body, requires that a degree of tone sufficient for the purpose of support and recovery, should be preserved.

I cannot imagine the possible existence of more than one case in a thousand, which will not require *some evacuation*. And in that the first sensible impression of the morbid cause (or the chilly state,) must be sufficient to kill the body. If that effect can be prevented, the progress of the disease afterwards, even in such a case, will generally give rise to the necessity for moderate occasional depletion.

The support of the body after evacuation should receive guarded attention. Its powers often fall very low in this disease; and in severe cases their recovery cannot be confided to the unassisted efforts of nature. Foreign aid is frequently necessary. The instruments of support will be most properly selected, when their adoption is deduced from a careful estimate of the general and particular features of the case. They should always be simple. Cordial liquids, light alimentary preparations; any thing the appetite may select which will afford the materials of nutriment, are often adequate to the object proposed. The medical tonicks are sometimes necessary and when they are, I know nothing better than the bitter infusions, and the preparations of bark. When we have any thing to apprehend from languid excitement, good wine*

* Porter and ale when good, are scarcely inferior to the best wine. The first is sometimes inadmissible from its laxative properties. The latter rarely produces disturbance of this kind.

promises every advantage which can be expected from the order of stimulants. I cannot think (for reasons already presented,) that opium, brandy, camphor, volatile alkali, æther, &c. can ever be proper aids to a weak body, except for temporary purposes.

Local applications and sweating.

I refer for their consideration to what has been said in the general notice of local affections and their remedies, under the head "stimulants." Of "sweating" I would observe farther, that if it could be easily induced, and restricted in amount so as to serve the purpose of moderate *evacuation*, it might be useful as a part of the *evacuant plan*. A benefit would also result to the patient from its existence to a limited degree, in cases where *excessive heat* was a cause of disturbed sensation, and protracted disorder of action. As the chief natural conductor of animal calorick, it would aid very much in dissipating the hurtful excess of temperature. But if powerful stimulus were necessary to provoke perspiration (as is frequently the fact,) any affected part would be exposed to injury from the action excited. The vital principle must also incur waste from that action, and the body be weakened still farther in sweating thus produced, by excessive drain from its sum of fluids. For

when thus elicited, it is rarely temperate, or controlable.

GENERAL HISTORY.

The disease exhibited in the preceding essay under the particular appellations* by which it was designated in different parts of our country, has been supposed generally, of peculiar nature, recent origin, and novel character.

That it is a distinct and peculiar disease, having its species and varieties, I am very much disposed to believe, and before closing this essay will propose some of the grounds on which that opinion is rested. But independent of the improbability that an epidemic disease should have existed *for the first time* within the last few years, the record evidence both of Europe and our own country, I think is at war with the presumption of its strictly novel character.

* I have before said that I think the forms of disease then described, all referrible to the same cause, that they are generically similar, though specifically distinct.

The British medical writers of the eighteenth century have described under the term "synochus pleuritica," and "pleuropneumonica," a disease strictly similar to the one we have reviewed. It was with them, as here, a winter epidemick; and appears to have wanted in Europe none of the common or casual marks, which have distinguished it in America.

The celebrated Huxham has given us a minute account of this disease, in some parts of his works on epidemick diseases, and epidemick constitutions of the air. Speaking of the diseases of January 1738, he observes:

"There are some *pleuritick fevers*, but a spurious peripneumony is by far more frequent, attended with cough, and *severe pains of the limbs*. The fever is *light*, commonly *nervous*, and sometimes subsides on the ninth or eleventh day, after *an eruption of red, burning pustules*."

Again in March of the same year;

"*Pleurisies and peripneumonies are frequent. Often both the side and lungs are*

"*Febres pleuritides aliquæ, peripneumonia notha
vere longe frequentior est, tussis, gravis arthritis tor-
quet permultos. Febris lenta, nervosa frequens, quæ
nonnunquam rubris, urentibus pustulis, die nono, vel
undecimo, erumpentibus, solvi videtur.*"

"*Pleuritides et peripneumonia frequentes. Sæpe
etiam et latus vehementer affectum est, et pulmo.*

very much afflicted. They call the disease "pleuroperipneumony," in which while there is pain of the side, there is at the same time cough and oppression of the breast. The disease is more distinct if bloody mucus is expectorated. In this form of the disease also, burning pustules frequently appear about the breast, scapula, and neck; generally on the fifth or seventh day."

In 1739-40 he remarks:

"Pulmonary fevers rage very much, (perfurunt,) and are far more malignant than formerly; being often attended with *black, livid, and brown spots*. The *head and back* are severely pained. The parts about the chest *greatly oppressed*. *Fierce delirium* almost always occurs, and from the commencement, an *ulcerous angina* seizes the whole fauces. The expectorated matter is *crude or bloody; dark, turbid urine, without sediment*. Luckily

Morbum vocant pleuroperipneumonia; in quo dum sevit lateris dolor, urget simul tussis et gravitas pectoris. Fit evidenter si sputa sanguinolenta expulantur. Nunc quoque in his malis haud raro erumpunt pustulæ urentes, circa pectus, scapulas, cervicem, quinto circiter aut septimo die."

"Perfurunt febres pulmonariæ, magis multo jam sunt malignæ, maculis, nigris, lividis, fuscis sæpe stipatae. Dolent vehementius caput dorsumque; semper quoque fere accedit phrenitis effera, ac sæpe angina ulcerosa ab ipso initio totas fauces correptans. Vel cruda, vel saniosa expuant. Cruda, lurida, turbida

sometimes in the latter stages of the disease, pustules and biles break out. But commonly the disease proves fatal in a very few days inducing great anxiety after the manner of paraphrenitis. Frequently also the patients are attacked with "hepatitis" indicated by the seat of pain, jaundiced complexion, and intense yellowness of urine.

"A putrid petechial fever also occurs which carries off many sailors, and common people. Those fevers are often complicated, *and rage with united force*, viz. the *pulmonary and petechial*."

Of the epidemick of 1745, the same writer remarks:

"Peripneumonick fevers prevail very generally; highly dangerous and frequently fatal. Some expectorate but little, or not at all,

urina, nihil unquam deponit. Fauste interdum, sub morbi finem, pustulæ erumpunt: sæpe vero jugulat ægros morbus, dira anxietate jactatos, perpau eos intra dies, more quasi paraphrenitidis. Etiam haud raro hepatitide correptos, nam situs doloris, et color iictericus, et intensa flavidò urinæ, hoc indicare visa sunt.

"Etiam grassatur febris putrida, petechialis quæ pleurimos nautas oreo dimittit atque inter popellum multos. Hæ febres sæpe complicatæ, et unitis viribus sæviunt; pulmonaria nempe, atque petechialis."

"Inerebescunt valde febres peripneumonicae, periculosaæ quidem et haud raro lethales. Aliqui parum aut nil expuunt; plures biliosa perl liquida, aut spumo-

others a liquid frothy biliary matter, badly concocted; many a dark or blackish sputum. They breathe with difficulty, and are afflicted with a sense of weight about the breast. It appears to me there is more danger to those who have this pneumonia, where the oppression of the breast, and sense of weight about the precordia exist to a great degree although the pain is trifling and not acute, than when they suffer more with pain of the breast or side. For in the latter case a loss of blood frequently produces relief. In the former however it is not only useless, but frequently in no small degree hurtful. You might perhaps be led to expect considerable benefit from a repetition of bloodletting. On the contrary, it is followed by extreme debility, suppression of expectoration, great anxiety,

sa, minime cocta; nonnulli sanum fere sub atram, anhelant maxime, summa pectoris gravitate premuntur. Magis mihi videtur impendere periculum pneumonieis, ubi permana urget pectoris oppressio, et grave quoddam precordiorum pondus, etsi levis tantum et obtusus adsit dolor, quam si pectore aut latere magis acute torquentur. Hic enim sanguinis missio plerumque adfert levamen: in priore easu ita saepe non juvat ut etiam haud parum sit noxia. Sperares forsan, magnum a repetita sanguinis missione auxilium, accedit e contra, debilitas maxima, sputi suppressione, anxietas gravissima, vigiliæ perpetuæ, delirium, tremores, frigidi sudores, tandemque frequenter, mors inopinata."

incessant vigilance, delirium, tremors, cold sweats, and frequently sudden death."

It is unnecessary to trace minutely the points of relation or similarity between the disease here described, and that known to us by the term typhus pneumonia. In their general character, as also in the more remarkable individual traits, there is an intimacy of resemblance which must obviate all doubt as to intrinsick analogy of cause and nature. We detect in fact less discordance than is generally sensible in other diseases of the epidemick character, common to Europe and our own country; to wit, those differences or modifications we have been accustomed to refer to variety of climate, and manner of life.

In some years, the disease appears to have put on there, as in this country, the petechial and maculated character. At other periods of its occurrence, that expression was rarely manifest, or in particular cases only. But then, both the general and individual features exhibited an obvious and decisive variance from ordinary pulmonary disease in that country, and a similarity amounting even to precision, with the distinguishing marks of the epidemick pneumonia among us. There was the same generality of existence, and dangerous tendency. The same order and character of local affection, as indicated by the state of the lungs, brain, &c. The same remarkable degree of physical incapacity, in the debility

and disorder of the vital and animal functions. And what particularly defines the essential analogy of character, a similar result in the impression and consequence of the same general remedy.

When we regard the particular evidences marking the early, progressive, and terminating stages of the European disease, the analogy is drawn still more close and sensible. We are informed by the same authority, that "A light chill is first felt, succeeded by equivocal and irregular heat, alternating with rigours. The sense of feebleness is very great attended with pain of the side or chest, and through the limbs. The head is affected with pain, often acute, and rising to delirium. The pulse is frequently small, and irregular; sometimes interrupted, and readily suppressed by pressure. Nausea, and vomiting of dark, or bilious matter attend, also great distress and difficulty of respiration, with occasional spasms, or tendinous twichings. The tongue is moist, and thirst not great. As the disease advances, the disorder of the head is increased, the restlessness becomes very great, the fauces grow dark, and foul, the surface becomes livid, the pulse more weak, and tremulous, and the extremities cold. Sometimes coma and coldness exist for a day or two before absolute death takes place."

In one of the years in which the epidemick pleurisy or peripneumony prevailed, Hux-

ham informs us, that many cases occurred in which the disease (as with us,) was confined in its local operation to the throat, in the manner of *cynanche maligna*, or *tonsillaris*. He speaks of it as generally and rapidly fatal; and recommends Bronchotomy in bad cases, though without much apparent confidence, from the proclivity of the disease, as he remarks, to pass afterwards into the lungs. A consequence he says he has often noticed.

A presumption that the typhus pleurisy or pneumony, has existed as an epidemick in this country also, many years since, will derive support from a regard to the extracts from the correspondence of Mr. J. Bartram, quoted in this essay when speaking of earthquakes. In reverting to the date of those communications it will be found that the disease existed here, a few years after the period in which Huxham noted its prevalence in Britain. "This winter, ('47-8,) says Mr. B. a *kind of pleurisy*, is followed by certain death: But the *yellow fever*, *dumb-ague*, and *pleurisy* joined, are the chief actors in this tragick scene." In '49, he again remarks "the sickness and mortality in our country are very grievous. A *kind of pleuritick fever*, mixed

with yellow fever, or what some call the Hungarian fever, with black vomitings."

That the pleurisy alluded to, was essentially different from the common pleurisies of our country, we must infer from the manner in which it is noticed. He says a kind of pleurisy. He means of course a disease different from the one known generally by that name. The "yellow fever," and "dumb ague" which he says were mingled with it, appear to indicate the vomiting of dark matter, and irregular protracted chillings, which we observe frequently, and indeed generally, in the well marked cases of the epidemick of the present time. Hepatick symptoms were also common attendants (Huxham says,) on the epidemick pleurisy or pneumony of Europe.

We must suppose from Mr. Bartram's language, that the disease he describes, unlike common pleurisy, was general or epidemick. "The sickness and mortality in our country, are very grievous." This phraseology is too comprehensive to have allusion to sporadic cases of disease.

This gentleman notices also, the supposed similarity of the disease he is speaking of, to the "Hungarian fever." But from his silence on the subject, he does not appear to have been in possession of the characters of that disease. The British writers mention the Hungarian disease, but I have met with none of them who describe it. It holds a place

in some of the catalogues of European fevers, but without a particular definition.

Mr. Bartram dissents from the general opinion of the time as to the influence of changes in the atmospherick condition (temperature, density, dryness, &c.) in producing the epidemick of '48, and '49, but proposes no opinion of his own, touching the cause of its generation.

GENERICK CHARACTER.

In noticing current opinions in relation to the peculiar nature of the recent epidemick of our country, I suggested an intention of examining its claims to a strictly generick character, an attribute which I then said I thought it might properly arrogate.

The disease in question appears to be essentially typhus in its nature and tendencies. But the reasons why we should hesitate to class it under the general head established for that order by nosologists, appear to me sufficiently plain and argumentative, to be entitled to respect.

The nosologists of Europe have derived an authority from very general consent for defining their generick typhus, "a contagious

disease." This attribute I know, has not been universally assented to among pathologists. But the ground of objection has never been sufficiently strong to shut it out from the schools of physick. Without affecting any part in the controversy, I shall take the definition as one point of discordance, between that, and the epidemick under consideration.

The latter appears under all circumstances, a disease of *solitary origin*. If it were contended that some species of the typhus of nosologists, are not *necessarily* contagious, but require a particular concurrence of circumstances to give them this character, I again propose the evidence of general experience, and the result of individual observation in support of the position, that no unequivocal proof can be found of contagion or infection under any form of the epidemick, in any circumstances.* From the manner of its production in many instances, we must assent unreservedly, to the correctness of the first proposition, namely, that our epidemick is frequently of solitary origin. And from that fact alone it would appear a fair presumption

* The epidemick in its various forms has occurred in cities, among the poor and dirty—in crowded families—in hospitals and jails, yet under none of those circumstances, has it exhibited an evident capacity for self-multiplication, by contagion.

that it is always so. I cannot well imagine the possible existence of two different causes of disease, which shall each be adequate to the production of the same effect. If one is sufficient, it alone is necessary.

That the different species of common typhus may communicate disease by contagion under some particular circumstances only, is very possible; and is owing I should suppose, to the different degrees of force in their capacity for producing their appropriate effect, and diversity of resistance in different situations, on the part of the body exposed to its operation. But I should think also, that if they were intrinsically contagious, the same disease, never could exist by any other operation, or have any other cause of origin than the specifick contagion. That when it did not exist from this cause, it could have no existence. We know that contagious diseases (particularly some of those called cutaneous, which are also strictly systematick,) vary very much in the degrees of force they are fitted to exert on different bodies. But a principle of contagion thus low in its powers, is rarely productive of consequences involving the security of life. Though I confess myself in some uncertainty on the subject, I should doubt a compound mode of disease (its incidental origin, and occasional contagion, and vice versa,) on the authority of the fact, that

diseases which are positively communicable,* are not known to exist from any other cause, or to be in any other manner producible. If ordinary typhus is generally contagious I must believe that a determinate mark of distinction exists between it and the prevailing epidemick in this particular. And that the line of separation may be properly drawn between them, through all their specifick forms.

2nd. The scene of impression also, and consequence, defining a period of disease, very different in duration, from that embraced by the laws of ordinary typhus, indicate very strongly a presumptive diversity in the kind

* As variola and lues.

The origin of those diseases is a speculative question of difficult solution. Whether we regard them as *judicial* or on the other hand as what we understand by *natural*, equal perplexity is interposed. If the first, why they were originally found peculiar to a particular people—if the latter, why they have preserved all their distinguishing traits when transplanted, though in no other place than that of original or natural creation, have in any instance existed (so far as facts determine,) in any other manner than by individual communication, or specifick contagion. We have not any facts to prove that even in the countries where small pox and lues were first found, either of them are ever of solitary origin, and every where else they appear exclusively contagious. While other diseases, which from their mode of prevalence, are evidently peculiar to situation and climate, are neither contagious there, nor transferrible by contagion to other places.

as well as degree of agency. Nothing marks more decidedly the similarity of diseases (whose symptoms correspond generally,) than the aggregate amount of the operation of their laws, in regard to the ratio of time. In its generick character typhus runs a protracted course as simple fever, inducing in a manner peculiar to itself, general not particular imperfection of the vital and animal functions. (I shall notice those more particularly in concluding.)

3rd. Local affections, are not common or proper attendants on the typhus of nosologists. They frequently exist not at all, and when they do, are consecutive and incidental. Generally when present they are partial and unimportant; and for the most part eruptive, not organick. In this respect only they have, a slight shade of difference in their definition from simple fever.

In all the forms of the epidemick, there is much organick disarray, and local affection. In that species denominated spotted fever, (the one most nearly allied to some forms of common typhus,) the throat we are told was so uniformly inflamed as to constitute a prominent pathognomonick expression of the disease. The stomach and bowels were also very generally disordered in their condition, becoming early a seat of fixed local disease. In the variety of the disease at present of frequent occurrence, and known to us by the

characters of cynanche, we have a considerable aberration from the operation of ordinary typhus. The local affection, and even the general action, are decidedly inflammatory in effect, wanting only an increase of positive force in the systematick excitement, to exhibit the full inflammatory character. Unlike the specific states of common typhus attended with local affections, this disease runs its course with more than the rapidity of even the worst forms of croup; frequently terminating life in a few hours.

Where the epidemick assumes the character we have denominated "typhus pneumonia," its specifick local consequences, become still more distinct and sensible. The lungs suffer in their economy with a degree of uniformity, and to an extent which appear to cut us off from the opinion, that this particular derangement is casual, and distinct from a connection with the remote cause of the disease.* Any state of contingent circumstances (weather, exposure, &c.) can scarcely be supposed to exist, whence we could derive a predisposition to a consequence so regular, as to be almost if not altogether universal. Nor can we look for its occurrence to a state of parts gradually produced, by a previous operation of diseased action in the general body. Pain and im-

* An affection of the throat is common also in this form of the disease, sometimes predominating over the pulmonary symptoms.

perfect function of those organs exist simultaneously with the first sensible impression of the noxious cause; and appear to result directly from that impression, whether specifically on that part or on that part with the whole, is of no consequence. The *tendency* when definite, and *uniform*, is of impression sufficient to mark the distinction.

We may be told that common pleurisy will give as in this particular the same expression. That pain is one of the first indications of the existence of that disease. But limiting the remark to simple pleurisy, it is perhaps always at first a local disease, and of casual occurrence. It is never epidemick, and in all its phenomena essentially different from the disease we are considering.

The above condition of the thoracick viscera so uniform in typhus pneumony, is noticed by no writer as an original or even secondary symptom of any form of ordinary typhus. The extreme anxiety of respiration is also nearly peculiar to this disease. In common typhus and some of its species and varieties we have great mobility and restlessness, and sometimes frequency of respiration. As a general fact however, the respiration in typhus, is rarely much disordered in this particular, save in the last stages of the disease.

There is no point of physicks involved in more mystery than the ætiology of epidemicks. The remote cause of many if not all

of them, appear to act on the body in such a manner as to affect especially some particular part or organ, rendering its function unfit for the healthy purposes of the economy; as we see in the state of the hepatick operations in intermittent and remittent fevers. By what kind of agency the body falls into sympathy with the part or organ, it is difficult to determine. Whether the material excreted in the disordered state of the function act positively on the body as a cause of systematick disease, or the body sympathises with the derangement of function, by a general law of its life, in a manner distinct from any peculiar morbid impression, I should hesitate to propose an opinion. The impression of some causes may perhaps affect in the first instance the general sentient system, producing consequences on particular parts in conformity with the degree of disturbance in the whole economy. But it appears to me that diseases uniform in their character and operations have their peculiar agent, and that such agent effects its first determinate operation on particular functions.

Epidemicks appear to derive their existence from specifick poisons, for the obvious reason, that negatives produce no positive consequences. And the supposed mode of operation would acquire a considerable firmness of footing if we may be permitted to argue from analogy with similar agents less re-

moved from our notice in their modes of operation. The action of specifick poisons on particular organs and secretions; as the altered function of the skin in small pox, and measles of particular parts in lues, hydrophobia, &c. appeared to indicate that the secretions of those parts are so changed under the operation of a foreign cause, as to become systematick poisons. The matter secreted, when transferrable in the sensible state, as in lues, variola, hydrophobia, &c. will be vehicles of the same disease to other bodies; and if such poison be removed from a part before the function of that part be subdued to its laws, the body will escape systematick disease. We can never detect the intrinsick nature of a mischievous agent. All positive causes (as before said,) are "*poisons*," and must act by their peculiar qualities. I think we may as rationally conclude that causes different in kind, (however produced,) will as readily affect respectively, the state and functions of other organs and parts, the liver, lungs, throat, &c. and thus subdue the body to their peculiar laws, as that specifick causes should operate as noticed in the instances adduced.* Perhaps the variety of local point of operation

* Whether epidemick diseases thus produced can generate a matter capable of communicating the same disease to other bodies, is a question, which, judging from observation and record testimony, I should be disposed to decide in the negative. Though I confess

and disarray of function, when original and uniform, marks more strongly than any other evidence the diversity (though essentially inscrutable,) of cause.

4th. Genuine typhus of the familiar character, is formed slowly. The patient complains of indisposition many days before absolute confinement is necessary. Sometimes chilliness is the precursor of its distinctive symptoms; but frequently it is not sensibly present at any period of the disease.

The different forms of the epidemick are ushered in hastily; and primary chill is universal. The morbid impression also is great, as it is sudden. Life is endangered from the moment of its occurrence. Occasionally it is true the incipient state of typhus is more distinct and severe. Chilliness, vertigo, and debility, are then very great. But in the epidemick the early marks of violence are scarcely ever absent.

there are affirmative arguments of a speculative character, whose force is not easily eluded by any other than the above appeal. The difficulty would be less if it were admitted, (and I can see no positive reason why it should not,) that causes of a different kind, may have a general analogy in their mode of operation as it respects the laws of the body, in producing their appropriate effect. An *ultimate variety of consequences* dependant on the peculiar properties and laws of the cause, would not be affected by such an admission.

5th. In the state of many of what are (arbitrarily,) distinguished, by the terms animal and natural functions, there is much diversity between ordinary typhus, and the forms of disease we contrast with it. Among the animal functions in the former, the senses generally, are very much impaired when the disease is fully formed. The eye, the ear, and the instruments of taste, touch, &c. are extremely insensible to their appropriate stimuli. Among the latter, or natural functions, the stomach and intestines are generally torpid and inexcitable: often to an extreme degree. In the latter disease, the organs of sensation, and the capacity of receiving intelligence by them, remain unaffected in their powers, or without sensible change, until the whole of the physical faculties are rapidly giving way. Or, when this infirmity of the sentient principle exists early in any case of the epidemick, it is sudden in its occurrence, and in many respects obviously different from the state of stupor, gradually induced in nearly all cases of common typhus. The excitable disposition also, of the natural functions (the sensibility of the stomach, intestines, &c.) is equally great as usual. Often from the commencement, morbidly augmented.*

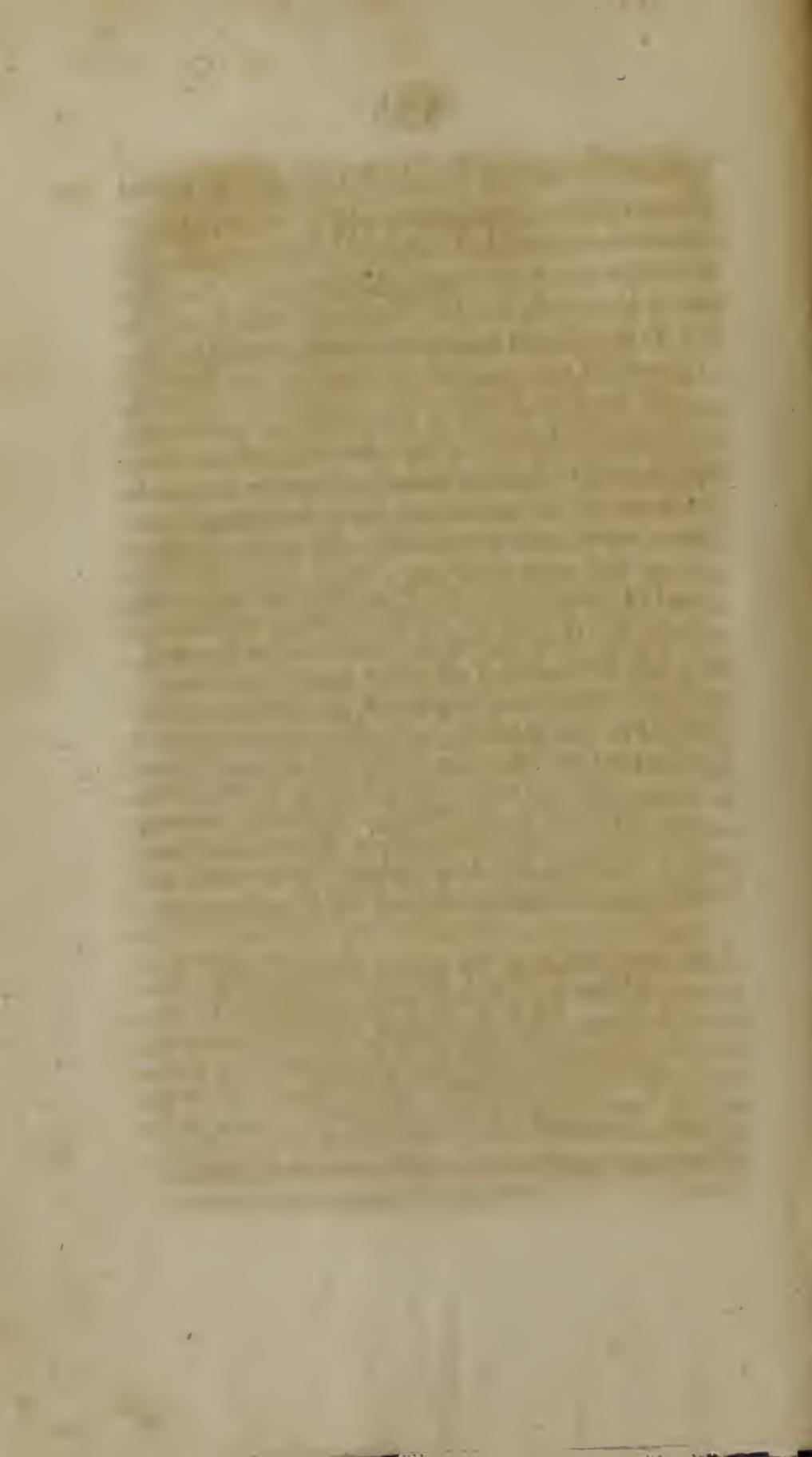
* The distinctive traits of typhus, which I have adduced in evidence of the supposed dissimilarity in the laws of operation, (and by influence of the mode

A considerable variety might be traced still farther, in the relative state of minor characteristicks; as the expression of countenance, the kind and order of cerebral affections, &c. But it is unnecessary to pursue an examination, in which we can arrive at no positively determinate conclusion; and I am unwilling to enlarge a work already perhaps more extended than useful. Notwithstanding, I believe there is a peculiar cause of origin for the epidemick now prevailing in our country, distinct from the modes of creation for ordinary generick and specifick typhus. I am satisfied also, that in the progress of the former, and especially in its advanced and dangerous states, we shall have an intimate analogy in the condition of the body, with regard to the degree, and in some measure kind, of impression, on the vital and animal faculties. I would prefer the term "synochus" as indicative of the epidemick in the majority, in the early period of its existence and operation. But the tendency of that operation is always to a

of origin,) between it, and the prevailing epidemick, are taken from medical histories of that disease by Scotch and British writers. It would appear that the former disease, is both of more common occurrence and definite character, in Europe, than in our country. In America I believe an original simple typhus is rarely met with. This state of fever, is generally with us consecutive of a preexistent synochoid form of disease, either simple or specifick.

general condition, to which the name typhoid is correctly appropriate. And we can derive from no source so sure a defence against its apprehended consequences, as from an intimate knowledge of the attributes and demands of that state in its general and specifick circumstances.

THE defects of the *manner* of this little work, have some excuse in the fact, that having been put in press a few days after its commencement, and the sheets printed as first written, a particular regard to order or dress was precluded. Its faults in *matter*, (and many may possibly be found in it,) have no apology, and cannot claim indulgence. No consideration can properly give to errors in science, either weight or security.



APPENDIX.

THE practical department of medicine, includes no remedy for disease, of earlier adoption* or a more general use, than bloodletting. None whose merit has been more the subject of discussion and controversy; none whose application has been more influenced by *example and authority*; none which has been more the instrument of caprice, and the resort of ignorance; none which possesses superior fitness for benefit to man; and none which has been so often made, the agent of his destruction. With the abstract question, how much importance can justly attach to the lancet, as a mean of defence in our hands, for health and life, against the inroad of disease, I am not at present engaged. This essay, embraces particular inquiries, rather than a general view. But were it necessary to propose an opinion upon this keenly litigated subject; or attempt the establishment of a just distinction, between the indiscriminate rejection, or recommendation, of that remedy, there could be no difficulty in determining, that both the one, and the other, were alike inconsistent with reason and experience; were equally causeless, unfounded, and pernicious. The tide of sentiment upon this subject, has undergone many vicissitudes of ebb and flow, in the successive eras of medicine. While at one period, the lancet has been permitted to rest undisturbed in its sheath, at another it might be seen incessantly dripping with human blood. While decried by one set of men, as the uniform implement of destruction; by another it has

* Since physick had any rational claim to the title of a science.

been held up to view, as the infallible harbinger of security.

This disgraceful controversy, has unfortunately not been confined to those periods of medicine, which have some excuse for their ignorance. The periods when the doctrines of plethora, or putrefaction of human fluids, constituted the extent of medical opinion. It has travelled down to the present time. And it is but recently that medical philosophers might have been distinguished, by those who bleed for every disease, and those with whom opinion had rendered human blood sacred. By those who affected a controlling interference over the powers of nature by the lancet: and those who stood passive spectators of her struggles with disease; or tendered her aid through the medium of articles, foreign, and for the most part, noxious to her economy.* Both were wrong. But the indisposition of mankind, to search for that knowledge which is accessible only to exertion; the facilities which it possesses for application to practice; and above all, the convenient refuge it affords, against the imputation of that ignorance, the weak, and disingenuous are unwilling to acknowledge; has given to the lancet a frequency of use, alike unwarrantable by science and secure from opposition. And it will continue to be wielded, so long as those causes, conspire to render it necessary. It is against the destructive consequences, of such an instrument, directed by such motives, in the hands of such men, I would guard the unfortunate victims of accident or disease.

The distinguished professor of medicine in the Pennsylvania medical academy, has for many years past, afforded a tribunal of appeal as respectable authority, for the free, and frequent use of the lancet. "Nil desperandum auspice teuero," has been the motto of thousands, who have held this instrument poized against disease, under the presumed sanction

* Diffusible stimulants.

of this justly venerable name. Particular circumstances, at one time, induced that gentleman, to prepare and offer to the publick, a diffus inquiry into the just application, and comparative advantages, of this remedy. And in proposing his "defence of blood-letting," he has assigned it a rank among the resources of the profession, with which no other can claim a competition. In the early stage of that inquiry, the professor has quoted a sentiment from Botallus, upon this subject, in the following terms; "one hundred thousand men perish from the want of bloodletting, or from its being used out of time, to one who perishes from too much bleeding, prescribed by a physician." Although this sentence is equivocal and unmeaning as expressed, yet were the sentiment intended to be conveyed, strictly just, I should be either combatting a chimera, or contravening the best interest of mankind, in pursuing this examination, one step farther. Common philanthropy, and professional honour, would combine to forbid the present purpose, and enforce a loud acclaim to this sovereign source of universal physical good.

But I entertain an honest conviction, derived from fair and full observation, that this inference is at war with fact; and in opposing its adoption, I believe myself discharging a duty whose obligations are paramount to every restraint imposed by authority: that I am contesting, not so much a speculative and unimportant maxim in physiek as a practical opinion, whose truth or error, is qualified to affect society, with the most serious, and decisive consequences.

No man venerates the character of doctor Rush more than I do; no one is more sensible of his general merit. I would not, were it in my power, remove a single stone from the lofty edifice of his fame; and would be among the first to inscribe on that column, "Esto perpetua." In his hands, I have no doubt, the lancet was frequently an instrument of benefit, rare-

ly of mischief to society. But we have not all enjoyed the advantages which fell to the share of doctor Rush. The multitude in medicine, like the crowd in common life, are often rendered by peculiar circumstances, the unthinking slaves of precedent and opinion, the undiserning advocates of right and wrong. It is because I hold the weight of this gentleman thus imposing, that I view his errors as dangerous. And it is because I believe what was truth in his understanding, and good by his management, has been frequently made error by the ignorance, and evil by the abuse of others; that I have suspended the particular objects of this essay, to take a cursory notice, of some of the maxims inculcated in the doctor's view of the same subject.

It is but justice to doctor Rush to premise, that in making selections from his "defence of bloodletting," his indefensible and doubtful positions only, will be brought into view. A reason has been already offered for such procedure; that reason will be a sufficient apology for omitting to notice, the general intelligence, accuracy, and research, which his essay must be acknowledged to exhibit. The quotations will be made fairly, and in no instance shall the text be cut off from its immediate comment, or any annexed *reasoning*, which will serve the purposes of illustration.

In concluding the perusal of doctor Rush's general writings, every reader must be struck with the application of his philosophy in medicine, to its practice. The decided tendency of doctrines to an active, and almost exclusive interference, with the laws of disease, and the operations of the animal economy. In the full range embraced by those doctrines, nothing, or but little, is trusted to the controul of nature, more strictly speaking, to the powers of the body.*

* The doctor in his "review of the comparative state of medicine in Philadelphia," &c. speaking of his own sys-

Perhaps this is the most serious objection, to the doctor's rules of practice. For although they are not without some defence in this particular, on the score of judicious application, still the objection will not be removed so long as there is hazard in the issue, and much difficulty remains, in making the necessary discrimination.

Such a notice of the doctor's views in science, is not inappropriate. From them is deduced the motive, which gives to the lancet its almost unlimited agency in disease. It will serve as a clue to that minute, and extended detail; as well as to the bold and daring practice, which his writings exhibit and inculcate. And it will shew us the way, in which by following this great man, without his skill and dexterity, we are so much exposed to get adrift upon the ocean of medical adventure.

I have heard this subject examined with (in my opinion,) much good sense, in the institute chair, of the Baltimore medical college. A serious endeavour has been there made, to impress on the minds of pupils, a due respect to the appointed economy of the system. They have been taught to believe that that economy was organized to preserve health, and to resist disease, within certain limits, and that it required aid in such an effort more frequently, than absolute controul. This is not an indifferent consideration. There are many conditions of the body, consecutive to violent assaults of disease, in which a respect, or disregard, for such consideration, will decide the fate of the patient; experience has proved that the decision effected by the latter, was for the most part, fatal: no language is more unmeaning, or less warranted by fact, than that which speaks familiarly of *curing*

tem, says, "it rejects an undue reliance upon the powers of nature, and teaches *instantly* to wrest the *cure* of all violent and *feeble* diseases out of her hands."

diseases; except in a few instances, such language degrades science, because it violates truth. The principles of that science, are upon many occasions, applied usefully, only when employed negatively; nature in disease, requires a friend, not a governour; an aid, rather than a dictator. I speak with reference to the powers of the body in our ordinary business with disease.

It may possibly be intimated, that I have travelled out of my way to offer, the incense of eulogium, to the gentleman alluded to.* I hold in derision, all petty malignity. The subject in my opinion is vitally important; and whoever contributes to its elucidation, or renders it subservient to the cause of humanity, confers a benefit for which acknowledgement is not a gratuity, but an obligation. I detract nothing from the merit to which authors may have a claim; I speak not of what may have been, but of what has fallen under my own observation. I am aware that a regard to the natural powers of the body, is not new, in the history of medicine; or rather that it was not new one hundred years ago. The principles of our science such as they were at, and antecedent to that period, were intirely grounded upon the broad admission of an animal faculty. What were the principles deduced from that admission, and the practice resulting from those principles, it cannot be necessary to inquire. They will not be defended on the ground of reason, or against the imputation of error, and absurdity. On the other hand, it will not, I presume, be contested, that much of the modern philosophy of medicine, has overlooked, or transgressed, the restraints of natural laws, in its grasp after dominion over disease: and if not denied, it cannot be doubtful,

* Dr. Davidge was professor of institutes at the time to which I refer. I have enjoyed the pleasure of hearing but few lectures since then in that institution. I think it second to no medical school in our country.

whether a rational adjustment of this difference, is important, or inconsequential.

I have frequently heard it asserted that many phenomena of the epidemic, whose character, &c. has been noticed in the preceding essay, resulted from an *oppressed* state of the system, and that *bleeding* was necessary to relieve the vital actions from that oppression, and thus *raise the pulse*, &c. If the following criticism on "the principles of bloodletting" is correct, many parts of it will have a bearing on that subject, sufficiently obvious to render specification unnecessary. The reader's memory will furnish him with the proper grounds of application.

Doctor Rush says, "the effect of bloodletting, is as immediate, and natural in removing fever, as the abstraction of a particle of sand, is to cure an inflammation of the eye, when it arises from that cause." In many states of fever, bloodletting is certainly the speediest, and most effectual mode of *restraining the violence of fever*, and averting its consequences from particular organs, or on the body generally. But there is no just analogy, between the abstraction of blood, and the removal of a grain of sand. The one is naturally present, and proper, to the body; the other foreign, and necessarily mischievous. The one is the immediate cause of injury, the other the indirect medium of evil. The one acts of itself; the other requires to be acted on. The properties of the one are inimical, the qualities of the other friendly to, the system. Whether the blood ever becomes by its quality, or quantity, a source of fever, is doubtful, probability is rather opposed to, than in favour of,

such opinion. The blood vessels, are the immediate agents of mischief.

A general argument in favour of bloodletting, has been inferred by doctor Rush, from the presumed purposes of particular parts of structure. The *spleen* and *thyroid gland*, have been the peculiar subjects of this view, doctor Rush calls them, "basins furnished by nature, to hold redundant blood."* The proof of this position, rests upon the assertion of engorgement in the spleen, in severe, and fatal cases of bilious fevers. The spleen, he says, is sometimes too small to perform the office of reservoir; and bleeding thus becomes necessary. He draws the same conclusion, from the relief said to be procured, in chronic, and winter intermittents, from bloodletting.

Nature never leaves her work incomplete. And if the spleen is ever too small, when in its natural condition, to perform the office of reservoir, such is not the function for which nature designed it. That it is *always* too small, to serve effectually, the purposes of retreat, for a part of the blood in fever, must be immediately obvious, to a reflection upon its comparative capacity, to the general quantity of blood: and this fact affords conclusive testimony against the just attribution of such an office. Admitting for a moment, the capacity for, and performance of, this supposed function: whether would it lead? what becomes of this retired portion of blood? does it remain insulated, and cut off from the circulation, during a fever of three and five days? and if it does, what preserves its living condition: its equality of life with the circulating mass?

* Keil, one of the oldest anatomists whose writings we possess, entertained an opinion respecting the recipient office of particular organs, very similar to the modern sentiment. He attributed a capacity for receiving redundant blood to the *liver*.

Engorgement or obstruction of the spleen has been exclusively connected with *bilious* fever: why this association? why limit its friendly offices, to one form of febrile disease? simple inflammatory fever, pneumonia, and phrenitis, are diseased conditions of the body, producing an equally elevated range of arterial excitement, with bilious fever. They are equally dangerous to life, and of course, equally demand sympathy, and succour. Respecting the cure of chronick and winter intermittents, by bloodletting, experience would establish as a general fact, that the most successful mode of relieving the system from that condition, in which this form of disease consisted, was by aiding it in making for itself an increased quantity of blood. But there is no consideration, which so completely puts to rest all doubt in the decision upon this subject, as this inference drawn from analogy in structure, as to similarity of function. In parts naturally fitted to receive an occasional increase of the quantity of blood, with a view to the performance of a natural office, we have an evidence of such capacity and fitness, in the mechanism of that part. Dissection or injection, has never yet detected a *cellular* arrangement of structure in the spleen, or thyroid gland.* It is unnecessary to say in what part nature *has made* this provision.

“Bloodletting, (says doctor Rush,) frequently strangles a fever in its forming stage, and thereby saves much time, and expense to the patient.” Had doctor Rush said that bloodletting in the early stage of fevers, frequently prevented a local disease as its consequence, I should have agreed with him, in the correctness and utility of the maxim. As it is expressed, I confess there appears to me much risk, in

* I first heard this objection to the recipient attribute of the spleen, &c. proposed by doctor Davidge in his lectures on physiology.

reducing farther those powers of the body, which are always low, in the *forming* stage of fever. Doctor Rush might discriminate correctly under such circumstances, but his opinions are in the hands, and influence the practice, of those who have not so much penetration as that gentleman possessed.

"In the period of menstruation," doctor Rush says, "the uterus is in an *inflamed* state, and the whole system plethorick, and excitable. Bleeding therefore, is *more* indicated, in fever of great morbid action, at this time, than at any other." Of the pregnant condition, he remarks, "the inflammation and distension, induced upon the uterus by pregnancy, and the inflammatory diathesis thereby imparted to the whole system, renders bleeding in the acute state of fevers, more necessary than at other times."

Were the opinion derived from our forefathers upon the subject of menstruation, correct, viz. that this function required for its performance, a *plethorick* condition of the body or the organ, or both; the doctor's inference would be in part just. But if this office is *natural* to the organ, we must unavoidably reject all deductions, founded upon the presumption of its generally *inflamed* condition in the discharge of that office.* If natural to the organ, it is necessary to the health of the body. Why its performance, if those principles are correct, should produce a plethorick and excitable, in other words a diseased state of the system, we should be puzzled to discover. But affording the doctor's presumption the utmost latitude, admitting local *inflammation*, and general

* We know that the due performance of this function, is generally if not universally necessary to the full health of the female body.

Inflammation is disease: and that a diseased process should constitute naturally, an essential part of the regular, healthy economy, is an absurdity in physicks, too gross for refutation.

plethora, I should be still at a loss even to imagine, why fever of great morbid action from *this* cause, should indicate a necessity for *more* bloodletting, than fever of great morbid action, from *any other cause*. Neither "inflammation or distention of the uterus," are a natural consequence of pregnancy; nor is there any "inflammatory diathesis" ordinarily imparted to the whole system, by the pregnant condition. The enlargement, and increased capacity of the uterus in pregnancy, are gradual and necessary changes in the state and economy of the organ, effected by regular, and *healthy* laws. The natural actions of the body are increased by pregnancy, because they have a work to accomplish, not embraced in their ordinary circle; the production, and nourishment of the foetus, &c. But this increased action and operation, is neither diseased itself, nor dependent upon a diseased condition. There is more blood at that time present to the body. But there is no disproportion between the *quantity* and the *demand*. It is present, because it is necessary.*

"The chills which follow bleeding (says Dr. Rush,) are the effects of a change in the fever, from an uncommon, to a common state of malignity." I would earnestly warn young practitioners, to be cautious in prosecuting bleedings, which are followed by chilliness. That system is generally feeble in its actions, which is agitated in this manner by the loss of blood. If by "a common state of malignity," is meant a *real*

* On the subjects of menstruation and pregnancy, I have heard much, that I thought just and rational, in the medical school of Maryland. A few intelligent men had hinted at a secretory function of the uterus in menstruation, prior to 1793; Doctor Davidge at that time embodied and improved the arguments in favour of this sentiment, in an inaugural essay. They are now proposed to his class, as the most correct theory of this part of female physiology

diminution of disease, the body should be *less* disturbed in its operations under such circumstances.

“Coldness of the extremities, and of the whole body.” “This *cold state of fever*, (says Dr. Rush,) when it occurs early, yields more readily to bleeding, than to cordial medicines.” Are coldness of the extremities, and of the whole body, always, attended by *fever*? And if they are, will that condition of fever *always*, will it *generally*, bear bloodletting? I pass by those states of the system, of which such symptoms are usually indicative. They are familiar to every one. But this remark is accompanied by no reservation, and if received in other than the most limited application, it is certainly destructive. I am not ignorant that there are certain forms of serious local disease, in which the expressions of the general system, are equivocal. And in such circumstances, we may have active inflammation, in a particular part, or organ, with coldness of the surface and extremities. In diseases of the head, stomach, and intestines, this state of things, is not uncommon. But even here, we are not left without admonition, from previous experience, and the evidence of the senses. The operations of the mind, the expression of the eye, and of the general countenance, the pulse at the wrist, the arteries about the neck and temples, or the comparative force of the heart, might all be examined, with a view to correct opinion, in disease of the head. For the stomach and intestines, where we could have no surer indications, the kind, violence, and duration, of *pain*, would serve us as guides. But we are to take the expression as it stands; and before adopting it as applicable to practice in simple fever, attended as we shall usually find it under the circumstances mentioned. (viz. cold surface and extremities,) by frequent and feeble pulse, I would beg every practitioner, to think seriously on the consequences.

The caution inculcated in the preceding remarks upon bleeding in chilliness, will be equally applicable to the practical inferences of the following paragraph. "Uncommon *weakness*, succeeding bloodletting, is the effect of sudden depression, induced upon the whole system, by the cause before mentioned, or, of a sudden translation of the excitement of the muscles, into the blood vessels, or some other part of the body. These symptoms, together with all the others, which have been mentioned, are so far from forbidding, that they all most forcibly indicate a repetition of bloodletting." I shall add but little to the preceding notice of this subject. When the powers of the body, are oppressed, not exhausted, by the cause or kind of disease, repeated bleedings can be proper, only when followed by comparative vigour instead of diminished strength. I mean as it regards the bloodvessels. *They* are the only index which should be known to the physician, under such circumstances. If the body sinks in power, and the arteries *do not* acquire energy, continued bleeding, must be hurtful or worse. Were the sentiment adopted with a guarded application, to the *translated excitement into the blood vessels*, when that excitement was sensible, it would be less objectionable; but the doctor, has said, *or some other part of the body*.

Doctor Rush rejects the distinctions established upon the appearances of blood drawn in diseases. He says, "dissolved blood, is an evidence of the highest grade of inflammatory action; and is the consequence of the force of impression upon the bloodvessels, rending and tearing the blood to pieces." Those distinctions are not always just. The state of the blood should never be a *sole*, or even a weighty consideration, in the management of the lancet. But that state of the blood, to which the term *dissolved*, has been usually applied, I think is correctly understood to be a general consequence of weakness in the body.

I cannot believe that any cause can impress the bloodvessels in such a manner, as to make them *rend and tear*, the blood to pieces, I should prefer the supposition, that this condition of the blood, was the consequence of the loss of some of its necessary parts, from diseased action; But more particularly resulting from a defective performance of the *blood-making functions*.

In enumerating the conditions of pulse, which indicate a necessity for bloodletting, the doctor has brought into view nearly all the expressions, which it gives us under any circumstances. I shall notice but three of those states of pulse. The first is, "an uncommonly frequent pulse, without much tension; beating from one hundred twenty to one hundred seventy or eighty strokes in a minute." What is strictly meant by without much tension, it is difficult to establish; but so far as my observation serves me, a pulse of one hundred seventy or eighty, is rarely tense at all: and if there is *no tension* in such a pulse, I sincerely believe there are few states of it in which bleeding would be less proper, or more dangerous. It is peculiarly that condition of pulse, which we find portentous of a fatal termination, in the advanced stages of inflammatory disease.

The second is, "a soft pulse, without much frequency, or fulness." Generally speaking this is the pulse of ordinary health. Or, if local disease is sometimes attended by this state of pulse, bloodletting, in such disease, can seldom be necessary; its consequence is doubtful, and must frequently be pernicious. A part, or organ under such circumstances, is debilitated in its functions, or has suffered in its structure; the system does not sympathize actively, with such part, or organ, but is making temperate efforts for its relief. The success of that effort, depends upon a certain degree of tone, in the general powers: that tone is now at a medium; reduce it, and

the death of the part, or a protracted, perhaps permanent, disarray of structure, will follow.

The third is, "an imperceptible pulse." Where this occurs even in the first moments of disease, bleeding must be frequently, I will say *generally*, improper. The absence of pulse at the wrist, may ensue, from any cause which communicates a violent shock to the vital powers; producing a temporary suspension of their functions. We find it in general syncope; this condition may be produced, through the medium of the senses: by the active, and sudden operations of the mind: or, by the preternatural force of a natural action, directly exhausting, or overwhelming, the natural energies. An "imperceptible pulse," may occur also, from any cause, immediately reducing the tone of a necessary action. Any thing, for instance which materially affects the vigour of contraction in the heart, or the due performance, of the respiratory function. It is a consequence of some states of concussion, or of mechanical injury of the brain, from accidental violence. And is an usual expression of the sympathy of the general system, with the offence offered that organ, in the *first* stage of apoplectick diseases. In all these conditions (and others which might be noticed,) the sum, and relation of excitability, and excitement, is reduced and languid; and scarcely adequate to the preservation of the phenomena, and faculties of life. Both depend upon the laws of circulation. With this result pendent upon them, their operations thus feeble, can be subdued farther by the lancet, but at the peril of the patients.

"Doctor Rush says, he has sometimes "wished, that the Chinese custom, of prescribing from feeling the pulse only, without seeing, or conversing with the patient, were imposed upon all physicians." It cannot be necessary to notice this remark seriously; or to ask what would be the consequences, of such a

restriction. How, without the aid of inspiration, we are to carry the doctor's *own* principles into beneficial operation, thus limited, I cannot even conjecture. With him, bleeding *may* be necessary, in almost every state of pulse. In *many*, it can be admissible, only from peculiar circumstances. Whether these circumstances exist, we are here left to imagine. The chance of error, is at least as great, as the probability of accuracy. Doctor Rush says, that continued bleeding is sometimes necessary, when the pulse *sinks under it*, so as to be scarcely perceptible. Does the pulse at that time, prefer an argument of such necessity. The doctor also considers bleeding occasionally indispensable, where "the surface and extremities are cold." The pulse of course, *generally* feeble. Where "the pulse is without much frequency, or force." In "depressed states of pulse." And in, "the imperceptible pulse." properly speaking, where there is none. The doctor cannot mean, that those states of pulse, always require bleeding. How, in obedience to this "Chinese custom," are we to discriminate, when they do? But the subject is unworthy of discussion; I will close it, by inserting a sentiment of Mr. Hunter, quoted with approbation, by doctor Rush, in his "defence of blood-letting." "In inflammation of the brain, the pulse varies more, than in inflammation of other parts; and we are led to judge of inflammation there, more from *other* symptoms, than the pulse." I will add a remark, for which the doctor himself is authority. "But in *misplaced* states of fever, the pulse, like folly in old age, points at a different mark from nature."

In speaking of "the difficulty in deciding upon the use of the lancet, where the pulse imparts no sign of disease,"* the doctor remarks, that "when the disease is recent, the part affected important to life,

* The doctor's regard for truth, here again stares the "Chinese custom" in the face.

when pain is great and respiration difficult, where there is redness in the face, and a watery, lively, or suffused eye, the pulse may be *disregarded* in the use of the lancet." No one of those symptoms, nor all of them together, will warrant the use of the lancet, without *regard* to the pulse. In some disease where important organs are affected, there is great *real* weakness of the natural powers from the earliest period of attack. *Great pain and difficult respiration*, are frequent consequences of very opposite conditions of parts, or of the whole system. *Redness of the face*, occurs in fevers of greatly reduced arterial energy, as well as in those of inflammatory excitement. The capillary vessels are debilitated; unable to contract vigorously, and propel their contents, they become injected. This is not always a consequence of increased impetus, or *vis a tirgo*. The system of which those vessels make the capillary series, is enfeebled, reduced in tone, and incompetent to communicate the energy which they want. What is the *hectick flush* in every period, and to the fatal moment of phthisis? What is the crimson hue, of the advanced and closing stage of pneumonia? of fatal small-pox? of angina maligna? of many states of typhus? and of most of those conditions of fever, indicative of approaching sphacelus, of some internal part? In none of those diseases thus producing "redness of the face," can the pulse be "*disregarded* in the use of the lancet," but at the peril, the probable sacrifice of life. A "watery eye" is not always proof of even local inflammation; never, except attended by other indications of that condition. Taken alone, it can afford us no evidence of the state of the general system. A "lively eye," is frequently the consequence of an excitable and vigilant condition of the system, dependent upon debility; and very different from that which requires depletion. A "suffused eye," is no unusual herald, of approaching death. When the

*Doctor
spoke of
cases
closing
of disease*

tone of fine vessels, is greatly reduced, their appropriate fluids, are permitted to escape. What is the mucous perspiration of extreme debility? and what the effusions which are poured into cavities, in articulo mortis?

Doctor Rush attributes the "prejudices against bloodletting, to an ignorance of the rapid manner in which blood is regenerated, when lost or drawn." And says, that even where no *aliment* is taken into the stomach, "an adequate reproduction of blood is effected; by the *chyle* which is secreted in the liver, from the fat of the omentum." This tortuous physiology, will require but little attention. I never heard of a law in physiology, by which two different effects were produced from the same cause, or in the animal economy, by which a single organ, performed two distinct functions. How does the liver get in possession of the fat of the omentum? through the general circulation! or have the absorbents, (the only instruments for furnishing this material,) found out some more direct route to the liver, than the thoracic duct, and subelavian vein? And if this material arrives at the liver, blended with the circulating mass, in what way does this organ select and separate it, from that mass for chylopoetic purposes! What becomes of the biliary secretion; while the process is going on? By what route does this *hepatick chyle*, when manufactured, find its way into the duodenum? Is the road common to it and to the bile? Do they travel together yet touch not? Or do they mix, yet undergo no change?

Doctor Rush says "in pregnancy the uterus is always affected with that grade of morbid action, which I formerly called inflammation: this is evident from its exhibiting all its usual phenomena in other parts of the body." They are

1st. "Swelling or enlargement."

There is no swelling in pregnancy. The enlargement, is a *natural growth* of the uterus. When this increase of substance, is no longer necessary, the absorbents take away what is not essential to the ordinary functions of the organ.

2nd. "Hemorrhage." "The lochia are nothing but a slow, and spontaneous *bleeding* performed by nature, and intended to cure the inflammation of the uterus, after parturition."

The lochial discharge cannot properly be termed a *bleeding* or *hemorrhage*.*

It is a healthy evacuation, not intended to *cure*, but to *prevent* inflammation. It is one effect of a system of natural laws, destined to restore the uterus to the condition antecedent to pregnancy.

3d. "Abcesses, schirri, and cancers." These with doctor Rush are the consequences of "pregnancy," "parturition," and "menstruation." They occur in women under all circumstances. More frequently in sterile women, and those who want menstruation, than in prolific, and menstruating females.

4th. "A full, quick, tense, or frequent pulse: want of appetite, nausea, puking, syncope, and convulsions." Those circumstances are not necessarily indications of inflammatory condition. None of them are peculiar, to pregnant, or parturient women.

5th. "Sizy blood." This to a certain degree, is not always, or even generally, inconsistent with health.

6th. "A membrane." Doctor Scarpa, says doctor Rush, has proved the *membrana decidua*, which is formed during pregnancy, to be in every respect, the

* After the detrusions of the fœtus, the uterus in gathering up to a smaller volume, forces out from the patulous veins or sinuses part of the blood no longer necessary to its economy. The evacuation when natural in quantity, is rather a discharge of extravasated fluid, than a hemorrhage.

same in properties, with the membrane which is formed upon other inflamed surfaces; particularly the trachea,* the pluera and the bowels." Where is this proof? In established fact, or mere fancy? Are the latter membranes when formed, possessed of *living capacities*? Do they serve any purposes proper to the natural economy? Are they not *dead matter, extraneous and hurtful* to the body, as soon as formed? Why did not doctor Scarpa go on, and say that the placenta, and foetus, were analogous in their production, and properties, to those membranes, or to *sehirrus and calculus*?

"Parturition, (says the doctor,) is a higher grade of disease, than that which takes place in pregnancy, it consists of *convulsive or clonick spasms* in the uterus, supervening its inflammation. By some *divines* these symptoms, and particularly pain, have been considered as a standing, and unchangeable punishment of the original disobedience of women; and by some physicians, as indispensably necessary to enable the uterus to relieve itself of its burden."

Oh nature, or rather nature's god! how much has thy goodness to thy creatures, been misapprehended, and perverted by the whimsies and caprice of man. "Crescite et multiplicamini." Heaven's first, and best law, to humanity is *disease*. Who ever saw "convulsive, and clonick spasms," of the uterus, in natural labour? Who has discovered this condition of the uterus, to exist in any labour? The parturient capacities of this viscus, may be irregularly, or not properly exerted; but there is no evidence, that this irregularity or defect, consists in a "convulsive, or clonick spasm." What have *divines* to do, with the

The material found in the trachea, on the pleura, bowels, &c. is not a membrane; it is never organized, and is nothing more than mucus, or lymph rendered thick and viscid by the loss of its more fluid parts, either by evaporation or absorption, sometimes by both.

“symptoms” and “pains” of labour ? I believe they seldom meddle with this subject; If they ever do, it is an indiscreet interference, with what they can know nothing about. Some physicians, can consider, and conjecture, any thing in physiology, rather than fact, or rational inference. It must be such physicians, who suppose that the detrusio[n] of the foetus, depends solely, upon the convulsive and clonic spasms, and pains, of the uterus.* But conceding for a moment, all that has been contested, in what consists the necessity for *bloodletting*? Is it to promote, or prevent, those “convulsive and clonic spasms, and pains,” of the uterus? The doctrine says they already exist; it says also, that they are *indispensable*. To assist then, is not requisite; to restrain must do harm. If menstruation, pregnancy, and parturition, be *disease*, alike inconsistent with health, are *secretion*, *nutrition*, and every *evacuation*. They are equally nature’s laws; equally uniform and necessary, they exist upon principles but partially different, if not entirely analogous. With the ordinations of providence, I dare not interfere; they are doubtless just. But whatever divines, or physicians, may have imagined, I believe them too far removed from our comprehension, to serve the purposes of argument, in the discussions of science.† Brutes have not offended heaven; have incurred no penalty for disobedience. Yet they too, bring forth with *pain*.

* The strictly uterine action in labour, is simple and limited.

† That the denunciation of heaven, “in pain thou shalt bring forth children,” has been accomplished, I have no doubt. But this is no evidence that labour is a *disease*, consisting in “convulsive and clonic spasms, and pains, of the uterus, requiring the use of the *lancet*.

But I have done with this subject. It has received its proper colouring, from the hands of an abler painter.*

From the numerous and just claims of doctor Rush, I have already said, I felt no wish to detract. His memory is entitled to the gratitude of his country, and of the profession, for his benevolent and industrious exertions in the cause of humanity, and of science. Engaged in examining, and endeavouring to expose, the misapplication of the lancet, I wished to take from ignorance and idleness, every security, which they might hope to borrow, for its abuse, from a partial, or perverted construction of respectable writers. In this view, the doctor's, "defence of blood-letting," lay incidentally in my way; I have touched nothing else and am now done with that.

"We must do something," is the most unfortunate and pernicious maxim, which has ever been introduced into the policy of medicine. At the moment when it received the sanction of professional reputation, professional imposture was legalized, and ignorance and artifice acquire confidence, from feeling security. I refer to no particular authority for the inculcation of this sentiment. It has unhappily been stamped with the approbation, and received the connivance of numbers, who could have wanted nothing but reflection, to have refused it their assent. Its adoption has never wanted advocates; it has been eagerly received, and amply exercised; and the profession is to this day disgraced by the admission that "mankind must be amused." Had half the pains been taken to acquire professional understanding, which have been practised to impose on society, this maxim might long since have been committed for the more honourable sentiment, that mankind must be instructed.

* Vide doctor Davidge's letters to professor Barton, in the 1st number of "P. Sketches."

It is under the covert of this professional mask, that the prejudices of the world have been pressed into the service of the practitioner; and its ignorance arrayed against its security. It is thus that a convenient resource has been provided against that false shame which dreads a candid avowal, and the physician armed with implements, for whose use or consequence, he apprehends no responsibility. Among the weapons of this licensed warfare against decorum and integrity, the *lancet* holds a distinguished rank. Like the sword of Alexander, it is the universal solvent for every difficulty; and has often been made to sever the gordian knot, which defective ingenuity was incompetent to unravel. Justice would be violated were those remarks pointed solely at the worthless herd whose business is imposture; who openly repose their claims upon the hopes and fears, the follies and the weakness, of their fellow creatures. They reach even him to whom contingent circumstances have opened a more ample and elevated range in professional relation; who without an effort to improve that profession, is solicitous to enjoy by *other means*, the benefits of its exercise.

Is the opinion so generally cherished by the vulgar and uninformed with regard to the advantages of bloodletting, in a majority of diseases, and in nearly all accidental injuries, the result of reasoning strictly their own, or the consequence of impressions derived from a familiar notice of *practical habits*, among professional men? we cannot withhold our assent from the latter. Nor is it the experience of time past alone, which contributed to the establishment of this sentiment. It is fully warranted by the daily observation of mankind at the present period.

1. Should some mechanick or artificer, engaged in prosecuting his ordinary business, be unfortunately precipitated from an elevated point, thus incurring violence, what is the usual condition produced by such

accident? and what the efforts on the part of the physician, for the relief of the patient? In a majority of instances such an occurrence will be succeeded by a suspension, or but feeble exertion of all the powers dependent upon the due performance of the vital functions. There is disturbed or abolished intellect, a loss of sensation and motion, imperfect respiration, diminished energy of the vital and natural powers, particularly of the heart and arteries, with a loss of temperature on the surface and extremities. To these symptoms may be superadded, a more or less considerable train of contingent circumstances; mechanical injuries for instance, as fracture, &c. or, deranged office of particular organs, as vomiting.

The first idea which presents itself to the minds of those who have collected about the sufferer, is the necessity for immediate *bloodletting*. A physician is called; for what? to exercise the principles of his profession as aids in restoring the functions and powers of life? assuredly; does he make that application upon the just deductions of reason and science? I answer generally, he does not. Perplexed by phenomena which he has not qualified himself to comprehend; submitting to prejudices which he has neither intelligence to refute, or firmness to resist, he feels a security only in a concurrence with common opinion, and customary habits. He does precisely what he should avoid. He bleeds, or attempts to draw blood. "He must do something."* In this case all the natural powers of the body, sympathize with a peculiar condition, or direct injury of some important organ, concussion for instance, or violated structure

* It is unnecessary to remark that I do not suppose such would be the conduct of *all* physicians. And every man's experience will furnish him with proof that such is the conduct of *many* who are so called.

of the brain.* Or the impulse communicated to the body generally, without local violence, may have produced a suspense, or derangement in the operation of the laws of the whole economy. Under those circumstances, the energies of the heart are the forlorn hope of the body. Those energies depend primarily upon the vital functions; these are interrupted or impaired, and can only be restored through the medium of circulation. The heart enfeebled by a temporary severance of its connexion with the vital functions, (or more strictly; cut off from the immediate influence of the brain and nervous system,) on what depends the continuance of its action, and the reproduction of general energy in the system? I answer, upon its remaining capacities for impression, acted upon by the properties of the blood; and by the stimulant effect of a certain degree of fullness in the heart, and large arteries. Take away blood, and you detract from both; you disable more particularly, in removing the support afforded by the latter.

It is of no consequence whether the heart derive its energies from a particular organ, or a general

* Some writers have attempted the establishment of a pathological principle, which has acquired weight from the general approbation of the highly respectable Pott, viz: In concussion of the train, to bleed not at all; in mechanical violence of that organ, to do so always. The distinction is intended to apply more particularly to the *immediate* consequences of the injury. And however just the first part of the maxim may be in its general application, there is but one consideration (and that one so far as my observation extends overlooked by all writers,) which can afford a rational ground for immediate bloodletting in the latter condition; viz. *læsion* of the organ; it is when from the character of the injury, and the state of the arterial system, we have reason to apprehend that the *vis a tergo* will produce farther violence, by continuing to pour blood upon the brain, from the ruptured small vessels. Here we may bleed, to arrest such hemorrhage, by abstracting from the forces which support it.

system; independently from the brain, or immediately from its connexions with the vertebral column. The consequence is still the same. The laws of sympathy are universal. Any cause affecting the body in such a manner as to produce the evidences of general disability, which we find in the first stages of violence from accident, will enfeeble for a time, and to a degree the force of circulation.

That there is this remaining capacity in the organs of natural action, in suspended, or interrupted animation, must be admitted, or suspended animation must always produce absolute death. For rationally speaking, the body cannot immediately receive from any foreign source, either the principal of life, or a capacity for its production. But for this remaining capacity also, the experimental physiologist, would be operating upon matter absolutely dead, the moment he had insulated a portion of the living body; as no part of such body, possesses of itself, distinct and independent properties of life.

That a certain relation between capacity and contents, or a due support from the quantity of blood, is essential to the tone of vascular action, perhaps, to life itself, cannot be denied, until hemorrhage ceases to produce direct debility, convulsion, syncope, and death.

I will examine the arguments of which those blood-letting gentlemen have been accustomed to learn. One of them is the fashionable phrase of "suffocated excitement." An apprehension that too much blood has been thrown upon the heart and large arteries. It is easy to relieve them of this solicitude. The consequences which they dread, are precisely such as the system requires. In this state of reduced vigour, a preternatural stimulus is indispensably necessary to the reestablishment of action and energy, in the heart and arteries. That stimulus is the blood accumulated in parts possessing the greatest living

capacities. Why if the proposed ground of defence for this practice be correct, do we hesitate to draw blood in the chilly stage of an intermittent? a condition in which though the actual debility of the heart be less than under the circumstances we are considering, and the engorgement equal or greater, we dare not increase that debility, or take off that fullness by the lancet.

2. Has some unfortunate been tumbled from his horse, or thrown from his carriage; or has he received a blow, a kick, &c. and is found by a physician who has been called, in the state of insensibility previously described; with the faculties of life suspended or but imperfectly performed? On every hand there is expressed an evidence of curiosity and solicitude, in the countenance of the attendants. All eyes are turned on the physician. He prefers his answer by unsheathing his lancet. Happily for the interests of humanity, the condition of the sufferer frequently affords him a security against the pernicious consequences of this gross and vulgar ignorance. The arteries in many instances are not in a condition to pour out that blood for which a passage has been opened. But for this circumstance, the conclusion of a copious bloodletting, and the commencement of *burial* preparation*, would not unfrequently be synchronous. And the physician effectually avert the indefinite consequences which he fears, by putting a period to the life of the patient.

Again I would ask, from what principle, of philosophy, science, or common sense, is deduced the necessity for immediate bloodletting under those circumstances? If the shadow of a reason can be offered, I will make an unreserved apology for all I have written. It is a practice without principles; a tame

* This is not fancy but *fact*. *I know* that such a consequence has been thus induced, in more than one instance.

submission to prejudice and example; and an unmanly retreat from a fair inquiry, or a candid acknowledgement.

I have already slightly noticed a phraseology in medicine, which all affect to understand; and from which perhaps this practice may receive some illustration. The doctrine of excitability and excitement; with their supposed varieties of relation to each other. If excitability be accumulated by the sudden reduction of excitement, thus producing a disproportion, or loss of natural relation, how will a *farther reduction* of excitement, reproduce an equilibrium? Upon what depends excitability? Upon the natural actions, in other words, the general excitement. It is the capacity of life supported by the living actions. If not in this way, excitability is no part of the economy of the system. It is foreign to the body, incidentally present, and when reduced could not by the body itself, be restored. How is an interruption or suspense of the exertion of those powers to *increase the excitability* which is dependent for its natural and healthy state, upon their full and perfect exercise? If by the sudden reduction of excitement, an augmented sum of excitability is present to the body, why and how is it, that the natural agents, or stimuli, of light, sound, appulse, heat, &c. lose in part or entirely, their accustomed effect? And if by morbid accumulation under those circumstances, is meant *concentered* excitability, excitability increased in a part, but the increase limited to such part, or parts, how, I repeat, is bloodletting to equalize it? If that condition does exist, and bloodletting can restore the equipoise, why have we neglected to use it in cases of exanination from submersion, and of asphyxia from cold?

3d. Is some poor labourer called upon under particular circumstances for an exertion which he is incompetent, to bear, but which he makes, and falls

enfeebled, exhausted, and almost expiring? What is the usual consequence of his being found in this condition by a physician? His blood must be shed. If this were not ignorance, I should call it inhumanity.

4th. Is a publick speaker engaged in discussing with freedom and energy a subject which arouses his attention, and interests his feelings. While pursuing it with ardour and enthusiasm, do the functions of the body, unaccustomed to this excess of mental exertion, fall off in vigour, and refuse him their support? Does he turn pale, totter, and sink! At this moment should a physician urge his way through the crowd, he has scarcely arrived, ere the bloodletting instrument gleams in his hand; the bandage and the basin are called for, or perhaps without their arrival a vein is opened. For what is this? shall we be told, that because convulsions sometimes attend such a case, bleeding is necessary? Do convulsions always depend for their occurrence upon existing excessive excitement? are they not sometimes consequent upon defective arterial energy, either direct, or secondary? and from either case is immediate bleeding necessary; or safe? If it be to save the brain, that the lancet is resorted to under such circumstances, we are both too late and too early. If the injury of that organ has suffered no particular violence, such violence may never accrue, or if it does, *fever* must first supervene.

And in the inordinate sympathy for a single organ, is no respect to be paid to the condition of the general body? most assuredly, the safety of that organ is all important. But the existence of injury, and the security thus offered it, are altogether speculative. And no man in his senses will consult that security under such circumstances, when by doing so, he involves a possible, or probable *sacrifice of life*.

Who are the subjects of the condition referred to? generally, the weak and unhealthy; those with con-

stitutions of mind and body, delicate and susceptible. Who hold life under a peculiar liability to its injury or loss, from contingent circumstances. Various considerations challenge an estimate in consulting an illustration of the phenomena attendant upon this condition? The orator if unaccustomed to publick speaking, may be affected by the novelty of the situation in which he is placed. He feels himself the object of pointed regard, to a numerous and respectable audience: he recognises the necessity for acquitting himself with distinction, yet wants a confidence of success. It is of no consequence to inquire, in what precise manner such causes of impression act. The fact that causes of this nature, do give occasion for the minds operation upon itself will require no evidence. That a disturbance in the economy, both of mind and body; is the consequence of that operation is equally well known.

Superadded to this enfeebling impression on the mind, is the difficulty of a rapid conception, arrangement, and illustration of appropriate ideas.* The operations of the mind thus become embarrassed, deranged, and painful. The very consciousness of perplexity, then increases the distress. Its actions irregularly performed, its energies become wasted. Confused perception, with vertigo succeeds. The body is early brought into associated sympathy. Losing the natural controul, and affected by the disturbed condition of the mind; its functions fall into disarray, and soon became enfeebled; and at the moment when vertigo succeeds to the agitation of mind, all the animal opérations which require the direction, or cognisance of the will, are suspended. The vital actions too, (those of the heart and arteries,) ordinarily independent of the will, but subjected under

* We are presuming the address extemporaneous, from the pulpit, in the senate, at the bar, &c.

certain circumstances to the laws of intellectual sensation and operation, partake of disturbance and debility from loss of sensorial energy and controul, and partial, or complete syncope ensues.

But distinct from defective confidence in the command of the mind over the subject of its operations, producing the general consequences referred to, the same condition of body may be produced by any cause exciting efforts in the mind, to which its powers are incompetent. The interest of a subject, viewed as essentially important, may lead the mind in the discussion of it, into the indulgence of fancy, and imagination, beyond the healthy range or limit, of its operations; where its energies falling off, the voluntary and vital powers of the body, suffer in their functions from a rapid waste of the principles of support, induced by their sympathy with the preexisting and present condition of the mind. The ardour of religious enthusiasm under peculiar circumstances, has been a frequent cause of this condition. In fine, the various modifications of strong passion and emotion of mind, may all under certain states of either sudden, or gradually accumulating operation, produce this effect. Consecutive to the various force, mode, or kind, of impression, we shall have in a greater, or less degree, debility, suspension, or exhaustion, of the faculties and functions of the body. If in this condition mischief take place, it is either by positive injury from the first impression of those passions upon an organ, or, by an enfeebled state superinduced directly, or meditately upon the general whole, or upon a particular part, subjecting such part to violence from the comparative force of the general powers, when reaction comes on. In the first, (viz. organiek læsion,) immediate bleeding cannot remedy what has already happened; and when (as is usually the case,) the body has fallen off in vigour it must protract, or prohibit general recovery. In the last, it

is irrational to prescribe for a condition antecedent to its existence; and which can be judged of only from the evidence it affords when actually present. The same general objection also, opposes itself to the practice in the latter case, as in the first, viz. that reaction may be altogether prevented by arresting entirely the remaining languid circulation, on which, and a certain capacity in the vital organs, the reproduction of the phenomena of life depends.

There is another cause apart from the agency of interrupted relation between mind and body, which may deprive the latter of its capacities, or suspend their exercise; and produce the prostrated state of animation we are considering. In the active and long continued exertion of publick speaking, the organs of speech and of respiration, are brought into frequent and forceful operation; the general actions are roused into preternatural excitement, this excitement consumes rapidly the oxygenous nutriment of the body, and if the situation be confined, the air of the room, though sufficient for the common purposes of life, may cease to afford a supply of that pabulum, adequate to this extraordinary demand. In a subject sinking from this cause, but one consequence can possibly result from enfeebling farther the respiratory forces by the abstraction of blood; that of augmenting the danger of the patient. In suspended animation, life can never be restored, except by causes which are efficient for the restoration of action and energy in the heart and arteries.

5. *Violent pain*, whether from accidental violence, or the consequence of more gradual changes of condition, has been considered by the *artists* of the profession, as an adequate warrant for the free use of the lanceet. I refer more particularly to the former; the severity of pain from casual injury. We find it sometimes in fracture, more frequently in dislocation. In each of those conditions, pain is produced by eau-

ses, and in a manner which we cannot affect by the immediate use of the lancet; or if we succeed in moderating it, such relief is obtained at the serious expense of the patient. Under those circumstances, pain does not afford that kind of artificial support to the general powers, which they sometimes receive from it; and on which we may occasionally depend for security in the abstraction of blood. Beyond a certain point or degree, pain directly exhausts the vital powers, and suspends their functions. While the cause of irritation continues, and its peculiar effects exist, bloodletting is dangerous in the extreme. Those effects are, universal relaxation, disorder of particular functions, a disposition to syncope, or the complete collapse into that condition. In some cases of displaced bone, those consequences occur to an excessive degree. Paleness of the countenance, laborious, imperfect respiration, copious sweat, feeble or imperceptible pulse, and general immobility from loss of voluntary control, mark the condition.* The first attempt of the practitioner when called to such a case, is reposition. If from awkwardness he fails of success, what does he next? why to escape the blush of embarrassed ignorance, unsheathes his lancet, and draws blood freely; he *has heard* that bleeding would obviate difficulty under such circumstances. I have seen such a case. After fruitless attempt to reduce a dislocated humerus, in a patient semianimate, and gasping for breath from pain, I have seen him bled

* Among the rare aberrations of that mighty stream of knowledge, whose course has been traced by the strictest laws of science, I mean the medical philosophy of J. Bell, I think we may justly rank his opinion on this subject; viz. that luxation is unproductive of pain. He has advanced that opinion in support of a doctrine certainly correct in its general features; viz. That ligament, tendon, and membrane, are insensible when uninflamed. But this appeal to the effect of *excessive* violence was unnecessary for its establishment.

copiously, and immediately again subjected to violent distracting forces. The second attempt was not more fortunate than the first. The expressive horror of the patient's countenance now preeuured him a short respite; he was permitted to lie down, or more properly carried to a bed, from whence he never again rose. Nor is it pain from actual violence only which leads the mechanical praetitioner into error. Pain from any cause which directly debilitates the necessary funtions of life, may throw the body into a liability to the occurrence of death, from a farther reduction of its powers superinduced by free bloodletting. Let the forces of the heart and of respiration, be enfeebled to an extreme by pain, and a lancet at that time be used from habit, or thoughtless accordance with custom, and its use will not unfrequently sever the feeble ligaments of life. I should smile to hear it asserted that physicians do not bleed from habit.

6. In large and mixed companies for whatever purposes assembled, (generally of devotion or amusement,) there are two descriptions of persons peculiarly exposed to inconvenienc or injury. They are females whose pulmonary organs are *constitutionally infirm*, or have been rendered so by disease, and those in the *pregnant condition*. Persons in either of those states, after remaining some time in a crowded room, experience a feeling of languor, which not unfrequently goes on to the state of syncope. It happens commonly that medical men are present at those assemblies, and considered as guardians of the health of society. They are called upon by others, or voluntarily come forward, to direct the treatment of those who have fallen into this fainting or insensible state. Here again, when observing what that treatment is, to which such sufferers are frequently subjected, every intelligent professional man, if he is also an honest one, must join in reprobating the ig-

norance by which such a procedure is dictated, and proclaiming the mischiefs consequent on its adoption. We have in this case the same mechanical conduct, the same absurd misapplication of the resources of the profession, as in the antecedent parts of this essay, we have held up to that contempt, we sincerely believe it merits. It is not asserting too much to say, that in a majority of the instances before us, the solicitous look, or the eager inquiry of friends suggest to the mind of the practitioner, the idea of the bandage and the lancet. If the patient does not speedily recover, her chance of doing so, is diminished by his carrying that suggestion into operation.

Though at first view there exists an apparent diversity of circumstances producing a liability to the fainting state, in the two varieties of bodily condition which we have said were most obnoxious to it, in crowded companies, viz. the infirm and delicate, and the pregnant female; yet in reality the effect is the result of causes essentially the same in both. The first of those two descriptions of persons, the weakly or perhaps phthisical female, carries into those places, a system either actually diseased, or labouring under a predisposition to its occurrence: and excitable because it is feeble. The atmosphere of the room, saturated with moisture, and raised in temperature, by the respiration and secretion of numbers, produces on this excitable condition, a temporary increase of action; with a rapid exhaustion of tone or power. This is the ordinary consequence of excessive stimulus upon the weakened irritable body. But in addition to this, we have in the present case, an *imperfect pulmonary system*, with *impure air*.* Either of

* An occasional cause of the fainting state of females in crowded assemblies, may also arise from artificial or mechanical impediment to respiration. I allude to tight lacing. That fashionable folly which destroys symmetry, renders deformity more obvious, and violates health. When the capa-

those causes considered apart might be adequate to the production of the phenomena presented to us; their combination can only contribute to render their effect more considerable. A healthy animal body placed in a polluted atmosphere,* will fall off in its powers in proportion to the unfitness of such air for the purposes of health; to persons afflicted with pulmonary infirmity, the slightest deterioration of air is sensible; a more considerable loss of purity endangers life. There is no more difficulty in assenting to, or

city of the thorax is thus contracted a proportionate diminution of the number of cubick inches of air received in the lungs will necessarily occur, and of course a relative loss of oxygen. If the air of the room is also reduced (by the respiration of numbers,) below the common standard of oxygenation, the loss will be still greater and more sensible. As the ordinary mode of relief where a defect of oxygen is felt, viz. the inhalation of an increased volume of air by full or voluntary inspiration, is precluded when the descent of the diaphragm is prevented by pressure on the abdominal muscles and viscera

In large assemblies or warm rooms, the fainting state may occur to persons thus dressed, even though *no diminution of oxygen* be present. The *heated* condition of the air acting as a stimulus will occasion some increase of general volume, and the *laced jackett* will then become a mechanical irritant to the sentient system, producing *pain* and disorder of the sensorial function. Nausea, langour, and proclivity to syncope are often induced by local pressure in dress.

* There is a condition of the body bearing in some of its phenomena considerable analogy to the state of syncope, but essentially different in its cause, and demanding a very different treatment. Persons of excitable habits after walking briskly, or making unusual exertions, sometimes loose suddenly their voluntary faculties, and fall into a state of insensibility. Here the excitement produced by the exercise or exertion, has inflicted injury on the source of the vital principle (the brain,) by effecting partial congestion. And the interruption or suspense of particular functions, has resulted from imperfect distribution of vital capacity. This state of things may occur at any time under the given circumstances;

explaining this position, than in admitting, or accounting for the obvious fact, that marasmus ensues to a diseased condition of the stomach. The principle diversity is as to the duration necessary for the effectuation of the consequence. The mode it is also certain is not precisely the same; they differ by the appointment of nature. But a defective support of the body is the result of either, and of both.

Were a man of common intelligence however unskilled in the laws of animal operation, to be told that health and power depended upon a certain sum of action in the body and with this knowledge were to be shewn a living body in which that action had fallen suddenly far below the natural standard, can we suppose that it would occur to him as possible that health and power could be restored to such body by reducing still farther the action already too low? Having no acquaintance with the absurdities of medical conjecture, he would be governed by common sense, and through this medium would view as error, what medical phantasni has held up as truth. I

but when the body is predisposed to such condition by the circumstances mentioned, (action considerably raised, &c.) the complete lapse into that state will readily occur upon entering a crowded room, where a *heated* air, with other stimulant causes, aid directly in its production.

Though at first view such a state of unconsciousness, might readily be mistaken for ordinary syncope, it uniformly exhibits phenomena never present in the latter condition. The face instead of being *pale* as in syncope, is more *red* than usual, sometimes a darkish red not dissimilar to the countenance of apoplecticks. The respiration too is more anxious and oppressed. In syncope it is slow and languid, or what is termed sighing. But the most remarkable discordance, is in the state of the *pulse*. It will always be found in the condition above described, full and generally slower than in health. In syncope it is always weak sometimes though not uniformly frequent. To take off the morbid impression on the brain by the lancet, is the proper object when the body has fallen in the manner suggested.

know that philosophy is ambitious; the pride of *spurious philosophy* particularly, repudiates what is common, and impels its votaries in the pursuit of novelty, into crooked paths, but for the honour of the profession, I hope we shall never be called on to refute an assertion, that we may safely disregard common sense, in the practice of medicine.

In the second description of persons exposed to the liability under consideration, viz. the pregnant female, it is not necessary to our purpose in accounting for the effect, to presuppose the existance of local or general infirmity. We have said that the physical default constituting syncope, resulted from a cause common to this with the former condition. To wit; defective oxygenous nutriment. In the first case we suppose an organick incapacity for its perfect appropriation to the purposes of the body. In the latter we presume an inadequate supply of the oxygenous material. During the period of gestation and increment of the foetus, its circulating fluids can receive the oxygenous principle only from the blood of the mother by means of the placental apparatus.* On this ground there exists in the pregnant condition an *uncommon demand* for pure air, and of necessity that condition will soon perceive and afford us an evidence of any considerable deviation from the state of purity necessary for its economy. Having two systems of animal operation to sustain during the contingent state of pregnancy, and the supply of oxygen being indispensable to both, the pregnant female will experience considerable languor, or fall into syncope,

* This presumption stands equally firm whether we admit the doctrine of direct transfusion of the maternal blood into the foetus, or the more rational physiology that the foetal blood is the product of its own vessels. The latter opinion is taught by the professor of anatomy in the Baltimore university, as also that there is a natural capacity in those appendages, for oxydating the foetal from the maternal blood.

in an atmosphere sufficiently vital for the ordinary purposes of others.

This last is more particularly the state in which the unreflecting, or rather uninformed practitioner will be disposed to unsheathe his lanceet. There is a silly prejudice adopted at first without reason, and subsequently received without examination, that every thing connected with pregnancy was subject to the governance of that instrument. All the phenomena relating to parturition especially, whether natural or uncommon, are to be regulated by bloodletting. With its advocates it is equally efficient in accelerating or arresting labour. When the parturient efforts are too feeble it will *strengthen*, when too vigorous it will *restrain* them. No inconsistency is too glaring, no absurdity too great to be reconciled with a practice which saves the trouble of thinking, and is *fortified by custom*.

The prevention of premature birth is the motive alleged by gentlemen for shedding the blood of pregnant females upon whom syncope has been casually induced. When all the muscles of the body are quiescent, or even for a time paralitic, I confess I see no danger of such a consequence; or if it really existed, I am equally at a loss to imagine how by bloodletting, it is to be averted. If abortion is dreaded from the atonic condition in syncope, bloodletting must throw the patient more completely into the relaxed state; I have no comprehension of what is meant by "rousing the energies of the system through the agency of bloodletting." It ought to be known also that the fetus does not, and cannot escape from its natural lodgement by *relaxation*. But that a condition opposite to inaction is necessary for this effect. If the convulsions which frequently attend the syncopick state in pregnant females, give rise to apprehensions of mischief, it ought likewise to be remembered that when occurring under the circumstances referred to,

they are simply expressive of greatly defective natural stimulus. Bloodletting if this view of the subject be correct, can be resorted to in such a case only as *experiment*, and before its advocates can be permitted to argue that it may not do harm, it is just they should prove it *can possibly produce benefit*.

Though I am rather noting what I conceive to be wrong, than prescribing what I believe would be right in the cases I have adduced for illustration, I think it not amiss to indicate what science and common sense dictate as proper in the circumstances we have been last considering. Those casualties occur frequently; and the wise should not feel affronted if I attempt to inform the ignorant. Air, absolutely or relatively impure, is the chief cause of the fainting state with the persons of whom we have been speaking. This should first be obviated by admitting purer air. It is better if it can be done, that pure air should be admitted to the patient, than that they should be carried in search of it; all motion is mischievous. The next consideration is that the recovery of the patient depends upon the reestablishment of circulation. In consulting this object, all mechanical obstacles to its accomplishment should be removed. A recumbent posture is best, as in this way the heart can with greatest facility send on its blood, having neither gravity or resistance to overcome. Supporting patients (as is generally done,) in the semi-erect attitude, is essentially wrong. In this position the heart and large arteries are unable to distribute the blood, particularly for the cerebral circulation. Another ill consequence results from this error. Without the patients be entirely unconscious, they waste when thus held up, the partial remains of power, in fruitless efforts at self support.

Regarding those conditions of pulse upon the existence of what practitioners have grounded their authority for the abstraction of blood, I shall say but

little. I consider it unfortunate for medical science that so many such vague, and contradictory sentiments upon this subject are already upon medical record. Many writers both ancient and modern, have been worse than uselessly employed in details and definitions of this kind. With both, pulses, like diseases have received many fanciful appellations. Like the reveries of imagination generally, they will be found capricious, unmeaning, and arbitrary. Among the ancients J. de Gorter and Galen have given us in the aggregate more than forty varieties of pulse, which are to serve as legitimate expressions of peculiar diseased condition. The moderns have trodden in their footsteps; borrowed some of their definitions, equipped others in a new dress, and appealed for the invention of a few more to their own creative genius. Neither science or society are debtors for those labours. Beyond a few general criteria, referring to more distinct and sensible conditions of pulse, no accurate idea can be conveyed in written definition to minds unpractised in frequent and cautious examination; none which can be made abstractly, the basis of a safe and rational practice. I have no hesitation in asserting a belief that thousands have fallen victims to the ignorance and error resulting from a servile confidence in written histories of specific states of pulse. Independent of those expressions of pulse inconsistent from particular and inscrutable causes, with existing diseased condition, its more ordinary phenomena partially modified, not unfrequently present serious difficulty to the mind of sensible and prudent men, as to the actual character of the disease they represent. The propriety of using the lancet is under those circumstances in an especial manner equivocal. We are subjected to doubt and hesitancy in adopting or rejecting it, from the contrasted impulse of expected good and apprehended mischief, in either its use or neglect. The patient's life is often

involved in the decision, and every physician who has not emancipated himself from the controul of conscience will deliberate before he determines. When he does act, it must sometimes be from considerations distinct from a regard to the pulse, of course such as cannot be fully exhibited in its definition, viz. the actual, perhaps peculiar, condition of the patient.

There are two states or varieties of pulse, which more particularly produce a perplexedness in the mind of the practitioner. The *small* and the *full* pulse. Each of those conditions may be, and frequently are, significant of two directly opposite general conditions. Conditions which it is not always easy by the pulse alone, to detect or distinguish. A pulse may be very small, hard, and quick; or very small, and either quick or slow, but not hard. In the first, the small, hard pulse, there is commonly an excessive inflammatory action. An excess of stimulant power and effect, which communicated to the arteries produces in them a greatly increased force of contraction; and of necessity, a diminished volume of the vessels; as their muscular capacities when exerted, must unavoidably approximate the general wall of the artery to a common center, thus reducing its lumen or caliber. Hence arises the resistance to pressure, or the feeling of hardness; and this condition of pulse, may perhaps be justly said to indicate the highest degree of stimulant agency. By bleeding, we take off in part, or entirely, the morbid impression, and the harmony of action between the muscular and elastick coats of the artery is restored, or becomes less disproportionate. The vessel acts more usually in obedience to its natural laws, and regains its volume. The small, quick, and weak pulse, marks the advanced stage of the action above noticed. It is the necessary result of that action, when not changed by the natural powers, or the successful interference of art. The action *ab initio* was produced by

causes affecting the whole system, or soon becoming general in their operation. The morbid agent has subdued the system too fully to its laws for the exertion of its natural faculties, or what we understand by the term reaction. The same kind of impression is kept up, and the same condition of the acting powers of the body, except as it regards their real force or energy, and their capacity of suffering or resistance. The excess of stimulant power produces in the heart and arteries a frequency and force of contraction which soon exhaust the vital capacities, and a fatal termination ensues rapidly. Acute diseases of vital organs, inflammation of the brain, stomach, heart, and substance of the lungs when extensive, exhibit the phenomena and consequences referred to.

A full pulse, when not remarkable either for quickness or compressibility, is strictly natural. There is then a proper balance in the operation of its opponent capacities, (the contractile and elastick forces,) and a harmony and equipoise of stimulant impression on the general body.

But the pulse, may be full in a very different state of the system, and from causes essentially distinct from those above assigned. We shall sometimes find the pulse full where the system is yielding very sensibly to the force of a morbid action, and occasionally it gives us that expression within a few hours of death. Under those circumstance, together with the perception of fulness, we have great *frequency*, and remarkable incapacity for resistance to pressure. This state of pulse is readily induced by the operation of acute diseases, on weak and excitable systems. It is a consequence also of some forms of continued fever in any system; and is often a precursor of fatal termination in many states of febrile disease which have been termed *chronick*. We perceive it in the advanced stages of hepatitis,* (with or without

* It is common in hepatitis, when that disease is induced by habitual debauchery.

effusion,) and in some cases of pulmonary disease, either original or consecutive.

The *full, quick* pulse attendant on any of the conditions enumerated, is uniformly an argument of extreme physical infirmity. The arterial energies especially, have fallen very low. Hence the *fulness*. The *muscular faculties* (vascular contractility,) is so far reduced as to have lost in great part, its controul over the resistance of the elastick power, and we have no longer more than a partial alternation of the systolick and diastolick action. The artery approaches somewhat the state of a vein, we perceive rather a vibration, than a distinct contraction or pulsation, and the vessel retains its *volume* because the *contractile faculty is inadequate to more than imperfect approximation of its general wall*. *Fulness* and *quickness* here, are the perfect opposite of *frequency* and *hardness*.



